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THE COVER: Ron Jenkins' paintbrush has captured the delicate shading of the blue grouse (front cover), one of the five species to inhabit Montana. Turn to page 27 for Jenkins' watercolor portfolio of "Grouse of Montana," with text by Dave Books. As the back cover announces, the *Montana Outdoors* Wildlife Calendar for 1979 is available. For details, see the order card on page 25. (back cover photo: Jerry Manley)

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The Editor's Column

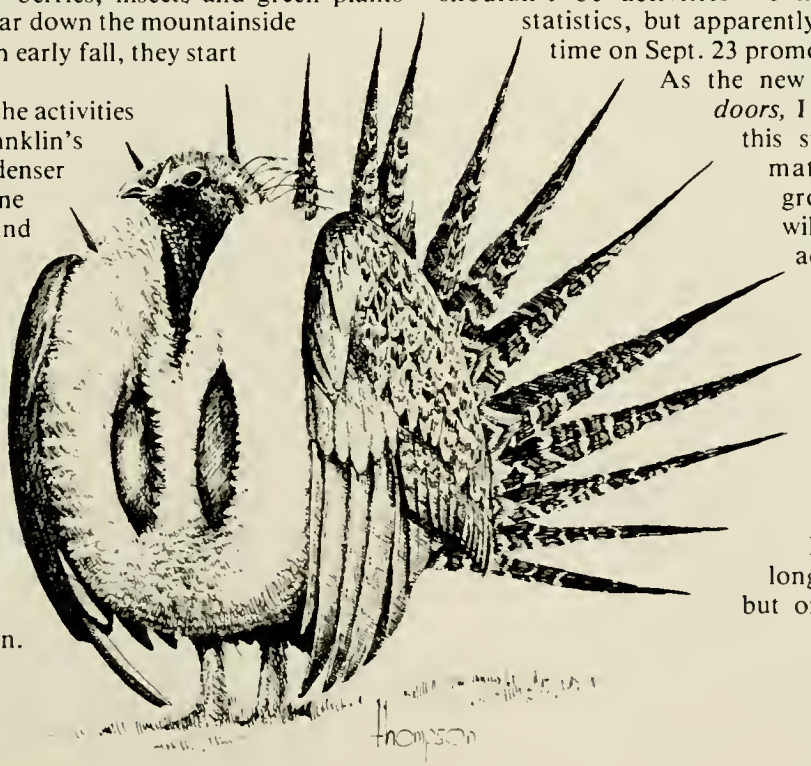
I don't know about you, but this time each year my thoughts turn to grouse and grouse hunting. I hope you enjoy Ron Jenkins' paintings of our five Montana grouse species, beginning on page 27. We asked Ron to paint the birds not in their colorful spring mating plumage, but as you are most likely to encounter them in the field. We think he did a masterful job.

My fascination with grouse goes back a long way. Where I grew up in Wisconsin, grouse hunting is more a religion than a sport, and the ruffed grouse is the high priest. People in the East take their grouse hunting very seriously. There is, for example, an organization known as the Ruffed Grouse Society, which boasts a membership of 3,500 (not counting pointers and setters).

I was somewhat disillusioned the first time I hunted ruffed grouse in Montana when my dog caught what appeared to be a healthy bird. (This would be unheard of in Wisconsin, where the birds are usually halfway to the next county when you slam the car door.) But since that first experience, I have managed to blow a few holes in the air and foliage behind a swiftly departing Montana ruffed grouse, leaving me with that same old empty game pocket I knew so well back home.

Blue grouse are known as forest birds, but I have seen them in Montana miles from the nearest tree. They usually winter at high elevations, but descend in early spring to semiopen timber for breeding and brood raising. In summer, their foraging for berries, insects and green plants sometimes takes them far down the mountainside below the forest zone. In early fall, they start the upward trek again.

Less is known about the activities and requirements of Franklin's grouse, which inhabits denser forest types such as alpine fir, Engelmann spruce and lodgepole pine. It is the least wary of the Montana grouse, and for that reason doesn't hold much attraction for the serious bird hunter. But thanks to the Franklin's penchant for sitting on a limb rather than flying, many a big game hunter has brought home a grouse dinner instead of venison.



The sage grouse, called "cock of the plains" by Lewis and Clark, is by far the largest of our American grouse (up to eight pounds for a mature male). While it is a bird of the open sage—and, in fact, depends on sagebrush for its survival—scientists believe it to be more closely related to the "forest grouse" than to the true "prairie grouse," the pinnated (prairie chicken) and sharp-tailed grouse.

Since I met the sharptail on the plains of eastern Montana a number of years ago, it has become my favorite of the grouse species. It may not fly as fast as the blue, weigh as much as the sage or have its own fan club like the ruffed, but this resilient little grouse with its snow-white belly is truly the bird of the Big Sky. Think of snowberry, wild rose, native grass, wide-open spaces and prairie sunsets, and you think of sharp-tailed grouse.

Even though grouse hunting, bow season or autumn trout fishing are apt to occupy your thoughts and weekends in September, take time out to observe National Hunting and Fishing Day on Sept. 23. Reacquaint yourself with some of the contributions that hunters and fishermen have made to wildlife conservation, and pass the word along to others. The estimated 20 million hunters in this country and perhaps twice as many fishermen spent a record $329 million on licenses, tags, permits and stamps in 1977. And according to the National Shooting Sports Foundation, 77% of state fish and game department budgets are paid for by America's sportsmen. Hunting and fishing shouldn't be activities we have to defend with dry statistics, but apparently they are. So spend some time on Sept. 23 promoting your sport.

As the new editor of *Montana Outdoors,* I suppose I might have used this space to discuss weightier matters than grouse and grouse hunting. Threats to wildlife habitat continue to accelerate, and no doubt they will occupy a good deal of my editorial attention as time goes on. But this is September, and if I seem preoccupied with frosty mornings, autumn colors, bird dogs and the smell of Hoppe's No. 9, bear with me a little longer. Grouse fever strikes but once a year.—*Dave Books*

The CMR: Rich Beyond Measure

article and photos by Mike Aderhold

The Charles M. Russell National Wildlife Refuge (CMR) is not on the way to, near or next to any other national or Montana attraction. Yet, its intriguing history, the rugged terrain, the myriad fish and wildlife species it supports and its fragile wildflowers have an attraction all their own.

Buried on portions of the refuge are remains of huge dinosaurs that expired in the late Cretaceous Age over 70 million years ago. The area has yielded some well-preserved *Triceratops* remains. These three-

horned dinosaurs were sometimes 20 feet long, eight feet tall at the hips and had a head the size of a Volkswagen. They once shared the refuge with the king of dinosaurs, *Tyrannosaurus rex*, the largest and best equipped flesh eater ever to stride the planet. Small, unusual teeth found on ant hills belonged to early mammals that lived with the dinosaurs. These ancient shrew and vole-sized creatures (multituberculates) outlasted the huge dinosaurs, but also disappeared millions of years ago. Evidence exists of over 90 species of plants dating back to the same era, including petrified *Sequoia* that later grew in a more temperate climate. These life forms once rested next to glaciers; their remains are now protected from unauthorized disturbance by the Antiquities Act.

The refuge was once part of the hunting grounds for bands of Blackfeet, Gros Ventre, Assiniboine, Dakota, Kutenai, Crow, Cree and Shoshone. Before them, there were countless nomadic tribes whose heritage might have dated to glacial times more than 10,000 years ago.

The refuge has seen its slice of the romantic West. The Missouri River, the first northern thoroughfare west, is the carving force and heart of the refuge. It carried the explorers Meriwether Lewis and William Clark, natural scientist Alexander Maximilian, artist Karl Bodmer and countless mountain men, miners, traders, military men, settlers—dreamers and searchers all. Mountain man Jedediah Smith camped near the mouth of the Musselshell in 1822; Father DeSmet, a missionary, crossed Big Dry Creek in 1851; Cap-

Now widely distributed throughout the CMR, mule deer (above) were described as "very scarce" by pioneer biologist Olaus Murie in 1935. The bright blossom of the prickly pear cactus (below) adds to the ever-changing combination of color and growth on the refuge. The rocky, dissected portions of the CMR (left) provided habitat for the now-extinct Audubon's bighorn sheep.

tain Isaac Stevens, military man and railroad surveyor, described the area in 1853; Captain William Raynolds, Army engineer, evaluated the area for travel routes in 1860; Dr. Elliot Coues, historian, retraced the Lewis and Clark journey in 1875. The Fish and Wildlife Service (FWS) has identified 32 unique historical and archaeological sites on the refuge, including a steamboat landing, some old trails, homestead sites and early fort locations.

The refuge witnessed the last stand of the Audubon's bighorn sheep (it was last seen near Billy Creek in 1916) and Montana's free-roaming buffalo (last observed in the Big Dry drainage in 1885). The area was home to the prairie elk, buffalo, wolf and plains grizzly until the turn of the century. Today, within the area's boundaries, the largest known specimens of paddlefish swim. Herds of antelope migrate south across Fort Peck Reservoir in hard winters. Spring concentrations of golden eagles feed on winter-killed fish. Observers spot the endangered peregrine falcon almost every year and migrating sandhill cranes have flown over the same scene for centuries.

The wildflowers, grasses, shrubs and trees—over 300 species—provide an ever-changing mosaic of color and growth.

As a reminder that the CMR can be a formidable place, there are occasionally 100-mile-per-hour winds, cutting hail storms, swarming gnats and mosquitoes, unbelievable gumbo and blinding dust clouds—often all at the same time. There are winter whiteouts, unbroken silences, breathtaking lightning displays and beautiful sunlit scenes, color changes and mood shifts.

HISTORY AND EARLY DAYS OF THE REFUGE

In 1936, President Franklin Roosevelt created four big game refuges, setting aside over 3 million acres for bighorn sheep, antelope, deer and upland game birds. The Fort Peck Game Range, established by Executive Order 7509 on Dec. 11, 1936, was the second of the four. Renamed the Charles M. Russell National Wildlife Range (now "Refuge") in 1963, its size (1,007,756 acres) is second only to Nevada's 1.58 million-acre Desert National Wildlife Range in the continental United States. Of the 386 units in the National Wildlife Refuge System, the CMR ranks eighth; the other six are in Alaska. The CMR is bigger than Rhode Island with room left over for New York City. It is more than five times the size of Montana's other 19 refuge units put together.

It is the largest contiguous piece of real estate in Montana with wildlife as its primary objective. Its charter states clearly that its lands are " . . . reserved and set apart for the conservation and development of natural wildlife resources and for the protection and improvement of public grazing lands and natural forage resources. . . ."

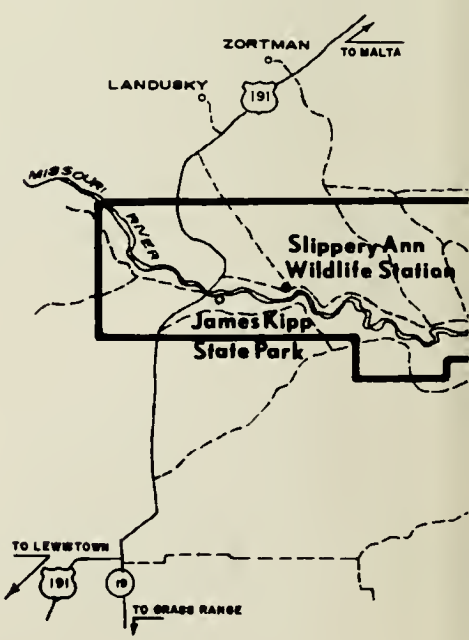
Almost all of the land included in the refuge had previously been withdrawn by the Land Acquisition Section of the Dept. of Agriculture for the huge Fort Peck Dam Project. Most was unclaimed public land, but about 150,000 acres was owned by approximately 100 private individuals.

As agricultural conditions declined through the worst of the 1934-37 drought, thousands of acres and hundreds of homesteads were sold for taxes, abandoned or otherwise returned to the public domain under various government land purchase programs. By the beginning of 1936, most of what was to become the CMR was in federal ownership.

In August 1935, Olaus Murie, pioneer wildlife biologist and naturalist and later director and president of The Wilderness Society, was asked by the Bureau of Biological Survey to " . . . size up the wildlife possibilities . . . " on the Fort Peck Dam Project lands.

Murie spent 16 days traveling the breaks country and talking with area ranchers and farmers. He noted no active opposition to the idea of a wildlife refuge. Grasshoppers had eaten nearly all the vegetation over extensive areas and he described mule deer as "very scarce" but "widely distributed." Old bison bones were still relatively common on the dry plains in 1935. Antelope populations were down all over Montana—from an estimated 2.5 million in 1896 to under 15,000 in 1935. Antelope were also scarce on the CMR but, like deer, widely scattered. A few black-footed ferrets persisted along the Missouri in 1935, but were threatened by the near extermination of the black-tailed prairie dog on the north side of the river. Prairie dog control was also threatening the burrowing owl. Ninety-five per cent of the buffaloberry bushes were dead because of the drought. Sharp-tailed grouse and grouse cover were scarce, but Murie estimated that the area could carry between 25,000 and 40,000 sharptails.

Murie predicted that white-tailed deer in the Missouri River bottomland would be doomed when Fort Peck Reservoir filled. He also believed the area was generally unsuitable for waterfowl. Murie was apprehensive about cattle and range condition, but he thought cattle had a place in the refuge program. He suggested Fort Peck for the refuge headquarters. He urged that road construction in the refuge consist of just enough roads to accommodate necessary administrative activities. He thought it unfortunate that refuge boundaries should be so narrow and not carry the sweep of the big landscapes out from the Missouri Valley. Formal recreation



developments, especially boating establishments, should be located at the dam site, he believed.

Murie's report no doubt influenced President Roosevelt's action 17 months later.

In 1936, the Fort Peck Game Range was an idea ahead of its time. The early refuges were established to benefit migratory waterfowl and unique birds. The drought of the mid-1930s brought about public and political awareness of the nation's diminishing game reserves. Creation of these large western refuges was the *first* expression of this concern. The actions were, at the time, "paper victories"—authorizations without appropriations. The country was in an economic crunch and the money was going elsewhere.

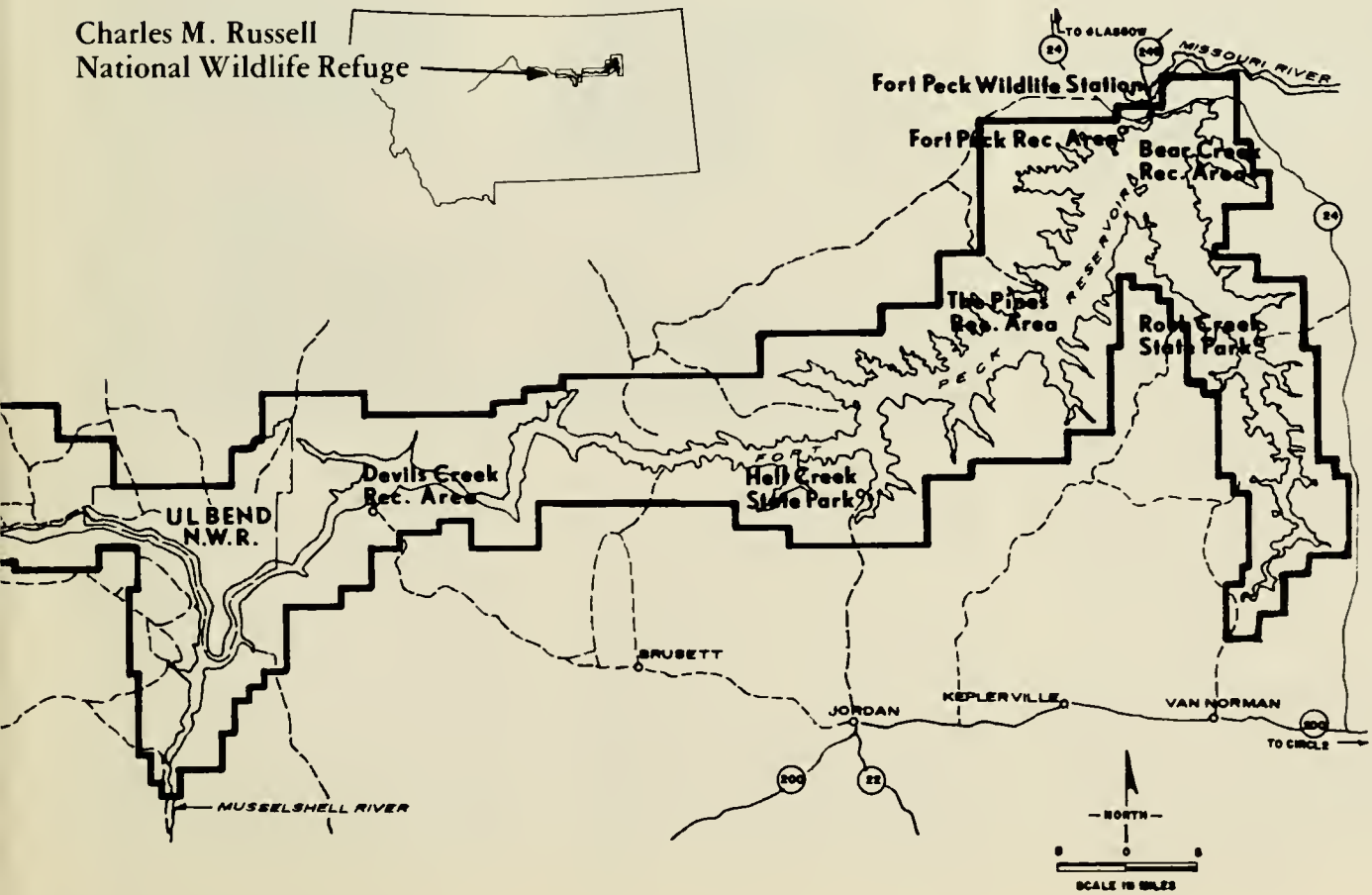
In 1940, the Bureau of Biological Survey assigned Albert Pulling, a wildlife biologist from the Upper Mississippi Wildlife Refuge south of Minneapolis, to make a two-month investigation of the Fort Peck Game Range. Pulling's report indicated it was the first time a biologist had observed the area since Murie's analysis almost five years before.

ADMINISTRATION PROBLEMS

Pulling's report opened with a brief summary of what has become the CMR's 42-year problem—administration. A color-coded map of land ownership is a confusing collage; there are Corps of Engineers lands, state of Montana lands, private lands, FWS lands and in the past there were Bureau of Land Management (BLM) lands. There are areas of primary and secondary responsibility. There are gift lands, acquired lands and reserved lands, with the latter two authorized under four different executive orders. Part of the area is classified as a "Migratory Bird Refuge—General," another part is classified a "Game Range" and the whole area is now called a "Wildlife Refuge." A contiguous piece of land was withdrawn from the CMR in 1967 and set up as a separate refuge, the UL Bend National Wildlife Refuge; it is classified as a "Migratory Bird Refuge—Waterfowl."

Other federal agencies with interest in the area include the National Park Service, Bureau of Reclamation, Soil Conservation Service, U.S. Geological Survey and, in the early years, the Farm Security Administration. Through the years, Montana has stubbornly maintained that the CMR falls within the jurisdiction and interest of the state's departments of Fish and Game, State Lands, Livestock and Natural Resources and Conservation. Top this off with the fact that most of these agencies and departments change their names about once a decade; no wonder some misunderstandings occur.

Pulling's report also documented some of the early problems. Game law enforcement in the CMR was almost unknown—one warden per 10,000 square miles. Nobody paid much attention to game laws, and poaching was common and accepted. The only all-weather road was the Fort Peck Dam to Glasgow road. Except for Fort Peck Dam, there was not a bridge or ferry on the



refuge nor a single telephone line. The refuge boundary was not posted, so timber harvesting for lumber, fence posts and firewood went on at will. The reservoir, operated mainly for navigation downstream, did not fill until 10 years after the river was dammed, and in 1940, it was about 125 feet lower at Fort Peck than it is today.

Even though the government owned them, the bottomland farms and ranches were still being worked. Although the drought had ended, deer and antelope were still scarce in 1940, with mule deer less abundant than in 1935. The black-footed ferrets were gone; prairie dogs were scarce. However, field mice, jackrabbits, cottontails, sharptails, sage grouse and coyotes were increasing. Stock growers were promoting and developing a number of coulee reservoirs which also benefited waterfowl.

About two months after Pulling completed his survey, 45 months after the refuge was authorized, he was appointed the first superintendent with headquarters at Fort Peck.

This was the first documented action taken on behalf of wildlife on the CMR. Fifteen months later, the whole Fort Peck Game Range was posted at its corners and wherever roads and trails intersected its boundaries. It became illegal to carry a gun within the boundaries. Enforcement was still difficult, but wholesale poaching was slowed, as much by the war economy and rationing as by this statute.

By April 1942, when Pulling was transferred and replaced by Thomas C. Horn, Pulling was able to estimate the deer population on the refuge had doubled. Antelope populations had increased, and sage grouse, sharptails and coyotes were plentiful. Even so, portions of the refuge were closed to big game hunting until the mid-1950s.

LIVESTOCK

Of all management issues on the CMR, none is so hotly debated, so emotionally expressed, so difficult to resolve and so hard to deal with on a day-to-day basis as the role of livestock on the refuge. Murie noted that " . . . cattle here and there, if not so numerous that one is apprehensive about the range . . . fit into the picture." Murie, at the time this country's elk authority ("Elk of North America"), recognized the potential grazing conflicts between elk and cattle. He recommended limiting introduced elk populations to the northwestern quarter of the refuge. He suggested, if possible, excluding cattle from the elk range, but using cattle stocking in surrounding areas and drift fencing to keep the elk in place. As an alternative, Murie believed stocking cattle at the rate of four head per section for eight months would be tolerable.

The refuge's 1936 charter specifically reserves forage for wildlife first, particularly sharptails and antelope, but also states that excess forage " . . . except as . . . provided . . . to wildlife" shall be made available to livestock under provisions of the Taylor Grazing Act. Responsibility for administration of the refuge's grazing program was delegated to the Grazing Service, which later became the BLM. Graz-

Although complicated by a complex and sometimes controversial grazing situation, range condition has generally improved over the years, as evidenced by the lush forage shown here (above). Waters within the CMR hold the largest known specimens of paddlefish (left).

ing activity was coordinated with the Bureau of Biological Survey, later the FWS, which had responsibility for the conservation and development of wildlife.

The grazing program was further coordinated with the newly created (1933) State Cooperative Grazing Assns. These associations included all landowners and users, public and private, within a geographic boundary (grazing district). They were empowered by the state to lease grazing privileges and to protect the land from overgrazing and improper use. This system worked with varying results. In some cases, local politics, favoritism and poor record keeping caused deterioration of otherwise well-intended grazing programs.

This system, however, was much better than the free-grass, anything-goes grazing practices of the previous five decades. With the abundant rains and snows in the early 1940s and development of coulee reservoirs to help better distribute cattle, range conditions improved considerably by 1950.

It wasn't until 1952, 16 years after the CMR was established, that the BLM and the FWS cooperatively surveyed the forage and determined the carrying capacity rate for grazing. They also assigned a forage allotment on each grazing unit for wildlife and livestock. The survey and grass allotments were fixed for a 10-year period. It was a good start, but problems developed. Cooperation seemed to depend on the personalities involved, the weather and annual forage production. Both the BLM and the FWS were understaffed and enforcement of the grazing program was inadequate. Fences failed or were moved. The pastures included land both on and off the wildlife refuge. The stock grazed differently from year to year, depending on the amount and availability of water. In dry years, the CMR seemed to receive the heavy grazing.

Elk were introduced and they changed the situation, as did increasing deer and fires. New grazing techniques were tried (deferred grazing, rest-rotation). Individual grazing programs were worked out, but some participants were never adequately informed. At times, it seemed nobody was satisfied.

The range condition in some areas declined and, in 1962, the BLM conducted some new surveys. Again, there were adjustments and appeals for different programs. In some cases, private consultants were called in and complaints went to court. Enforcement and cooperation were uneven and the common denominator again was dissatisfaction.

In some parts of the CMR, the Soil Conservation Service made yet a third survey in 1976. As might be expected when three surveys were performed, three sets of figures emerged. It seemed the more the range situation was studied, the more complex it became.

However, three needs were constant: (1) The stockman needed assurance that his grazing privileges were secure. (2) CMR's administrators needed to determine what kind of long-term wildlife program they wanted. (3) All parties needed to agree on proper implementation of the grazing program.

COYOTES AND PRAIRIE DOGS

It seems that just about everyone in northeastern Montana old enough to drive a pickup has an opinion on coyotes and prairie dogs. CMR's 1936 charter mentions sharptails and antelope as the refuge's primary species. It continues with mention of "nonpredatory" secondary species necessary to maintain a "balanced" wildlife population. The inference is that coyotes, bobcats, wolves, mountain lions, etc. are not really welcome. Others would say any "balanced" wildlife population needs a complement of predators as well as prey because natural checks on a prey population must be permitted to function.

For some people, a single coyote is one too many. Others don't want the animals killed at all. The current high fur prices are stalling the issue in northeastern Montana—free enterprise is keeping the pressure on and coyote numbers and problems down.

Some evidence indicates that coyotes have, at least in historical times, been common on the wildlife refuge. Murie recorded them during the height of the drought in 1935. Pulling recorded a rapid increase in coyotes after the drought. He felt a relationship existed between coyotes and deer and, in March 1941, instigated a control program with two full-time hunters. By May 1942, deer populations were increasing and coyotes were still plentiful. Coyote numbers decreased after the war when 1080 came into use, but residents of the area reported at least a few coyotes every year.

In February 1976, the FWS decided to try to shoot 300 coyotes on the ice on the CMR. Times had changed and the proposal triggered a classic three-sided confrontation involving environmental groups, the FWS and private citizens interested in predator control. In short, environmental groups questioned the logic of this limited control on a national wildlife refuge and used political maneuvering in Washington, D.C. to stop the action.

Prairie dogs are a little different story. Their numbers were greatly reduced by poisoning during the early part of the 1930s and the

Cottontail rabbits inhabit the refuge. Believed to be the desert variety, they were first observed by Lewis and Clark Sept. 15, 1804 in South Dakota.

drought further diminished the populations. Murie and Pulling recorded few prairie dogs in the early years. So, prairie dog control was phased out and populations began to increase. In 1974, 58 towns, totaling 4,350 acres, were identified on the CMR. Again, the FWS has proposed control and again disagreements have surfaced.

Prairie dogs inhabit about 0.6% of the CMR. Research indicates that 30 other birds and mammals are associated with these animals.

Problems arise when prairie dogs raised on the refuge threaten land outside and also when individual towns threaten soil and water resources. Action has been deferred pending an overall wildlife plan and an animal damage control policy. (The refuge's master plan is due in June 1980.)

WILDERNESS

The early champions of wilderness first thought of the western mountains as one of the last remaining undisturbed and inaccessible places. There was less economic and political interest, so they had the best chance for protection. Clean, clear water and the availability of wood and grass made them attractive spots in which to hike and travel with stock.

Still, it was logical that the wilderness idea would eventually extend to the prairie. After all, one of the guiding principles of the wilderness movement was to hold for all time examples of our natural heritage from the dominant and disruptive hand of man. The prairie has wild values equal to any place, just different.

The FWS began assessing the wilderness potential of the CMR in 1969. This initial effort was coordinated with the BLM, Dept. of Fish and Game and other interested organizations. All agencies agreed that limited access should be maintained. Instead of the huge blocks of wilderness preferred for mountainous areas, the agenices adopted a unit or package approach. The basic idea was to protect the most remote, wild and scenic areas, yet permit and even facilitate grazing and visitor access. Most of the prairie country is without natural sources of drinkable water, so the area doesn't lend itself to extended backcountry camping, cross-country hiking or horse camping.

In the 1974 draft environmental statement on the proposed CMR wilderness, the FWS and, at the time the co-managing agency, the BLM, identified 533,855 acres in 42 units that met the basic wilderness selection criteria established under the Wilderness Act of 1964. After lengthy discussion and compromise, the FWS distilled the qualifying areas down to 317,000 acres in 17 units.

Quite a bit of local opposition to this compromise surfaced, especially from the stock interests. Confusion, misunderstanding and apprehension existed over how a "wilderness area" would be managed. One popular belief is that wilderness status will "lock up" an area and that livestock eventually will be eliminated. Stockmen are also concerned that vehicle and heavy equipment maintenance of the fencing and reservoirs will be limited or denied; this, of course, could ruin a stock operation. Some wilderness advocates assume that in prairie situations the necessary vehicle maintenance will be permitted under administrative authority. Unfortunately, policy in this area is unclear. Until it is clarified, stock interests will probably remain opposed.

The 317,000-acre proposal was reviewed by state BLM and FWS offices in Billings, regional offices in Denver, national offices in Washington and finally the Secretary of the Interior's staff. A joint proposal for 176,140 acres of wilderness in 13 packages resulted.

State and national wilderness organizations and advocates were aghast. They cited a present need for statutory protection of the area. They pointed out the fact that a "*national* wildlife refuge" was involved, and that it was public domain—so the issue was of national and statewide. concern, as well as local. They also wanted to stop the water and fencing developments to protect the existing values. The Montana Wilderness Assn., Montana Wildlife Federation, The

Wilderness Society, Friends of the Earth, Sierra Club and Federation of Western Outdoor Clubs all strongly endorsed the 176,140-acre proposal, but also recommended inclusion of another 285,000 acres of qualified lands within and adjacent to the refuge, for a total of 461,220 acres in 21 units.

During late May 1974, public hearings were conducted in Malta, Miles City, Billings, Denver and Jordan on the 176,140-acre proposal. Afterward, the acreage was reduced by the Secretary of the Interior's office to 155,288 acres in 15 packages. That is where the proposal stands today. These packages contain very few reservoirs and fences. Another 6,192 acres was identified as "possible wilderness area" if vehicle entry was authorized for maintenance of existing facilities. Action on this proposal is awaiting completion of a mineral survey.

DEPT. OF FISH AND GAME ACTIVITY

Early activity by the state on the CMR is not well documented. Murie recorded that sometime before 1925, the Montana Legislature set aside the Snow Creek Game Preserve, most of which was within the present CMR boundary in Garfield County. This was probably a belated attempt to save the now extinct Audubon's bighorn.

In June 1942, the leader of the state big game survey noted that poaching was still a serious problem, but that eastern Montana's game was making a slow, but noticeable, comeback. That year, the northeastern part of the state was allowed a one-day sage grouse season and a one-day sharptail season.

In September 1943, a state deputy game warden was assigned to Glasgow to help control poaching on the north side of the refuge. The winter of 1943-44 was the first year a significant number (3,000) of mallards wintered in the seeps below Fort Peck Dam. The next year, the number of ducks was up to 10,000, with 25 goldeneyes. By fall 1944, the area north of the CMR in Valley and Phillips counties had an antelope season; 25 either-sex permits were issued in each county.

In November 1947, the department introduced 16 bighorn sheep on the south side of the refuge in Garfield County in a fenced 328-acre pasture near where Audubon's bighorns were last sighted. Five years later, the fence was removed and 70 bighorns were counted. By 1954, about 130 sheep inhabited the area within 10 miles of the release site. An unexplained die-off occurred—five ewes were observed in 1957 and four rams the next year. By 1960, the bighorn sheep in the Billy/Snow creeks areas had disappeared.

A second attempt to re-establish bighorn sheep in the Missouri Breaks was made in 1958. The Two Calf/Armells creeks area of Fergus County in the southwestern corner of the CMR was selected. Between 1958-61, 43 bighorns from the Sun River and National Bison Range were introduced into a 1,400-acre pasture, surrounded by a seven-foot fence. In the following 13 years, the bighorn population slowly increased to about 90. During the rough winter of 1971-72, this herd experienced a severe die-off. Recovery has been slow and the herd today has fewer than 20 animals.

Fortunately, the reintroduction of elk was more successful. Department employees trapped the elk in Yellowstone National Park. But northeastern Montana sportsmen and ranchers brought the animals north in 1951-52. The elk were introduced under the supervision of warden Eddie DuBeau. The story of this herd was detailed in the Sept./Oct. 1975 issue of *Montana Outdoors*. Today, it is one of the healthiest and most productive elk herds ever observed. (The herd's movements, productivity, hunting history and response to human and livestock activity have been the subject of a fascinating five-year study that will be featured in a future issue of *Montana Outdoors*.)

The department, with sportsmen's funding, introduced wild turkeys into the Slippery Ann, Musselshell Breaks, Larb Hills and the Pines Recreation Area in 1957, 1960 and 1966. The CMR has proved less than ideal for turkeys, but small populations survive north of Brusett and at Slippery Ann.

Deer numbers increased in the western half of the CMR in the late 1940s and that area was opened to hunting. The eastern end of the wildlife refuge remained closed until the mid-1950s. The opening of the eastern end is a story of improved habitat, a resilient deer herd and the perseverance and cooperation of many individuals, the Dept. of Fish and Game and other agencies. Today, state game biologists working in the Miles City, Glasgow and Great Falls regional offices and FWS biologists working in Lewistown, Fort Peck, Jordan and Slippery Ann monitor the CMR's game. Through the years, more than a half dozen graduate wildlife studies have been done on the refuge, sponsored by the FWS, BLM, Dept. of Fish and Game and others. At least seven department wardens assist the FWS law officers in patrolling portions of the refuge.

The fish story in Fort Peck Reservoir, which is part of the CMR, is also interesting. Of the 41 fish species that have been found in the 189-mile long, 250,000-acre body of water, 13 species are exotic (not native to Montana). Some were introduced by private individuals, but many of the game species were brought in by the state. By summer 1949, over 1 million fish were annually planted by the state—trout in June, sockeye in July and pike in August and September. Walleye were also brought over from the new McNeil Slough Hatchery near Nelson Reservoir. During fall 1950, three different fishermen caught 20-pound catfish at the eastern end of the reservoir near Duck Creek. After 36 years of state fisheries work on Fort Peck Reservoir, records show over 78 stockings of 12 species—close to 10 million fish, including 500,000 walleye and 65,000 lake trout planted this year.

Today, the reservoir at the eastern end has matured, and it is not as productive as it was during its first 15 years. Still, the fishing is better than average, with walleye and pike dominating the catch. Lake trout first stocked in 1952 just recently started to show up in catches near the dam. Perch fishing is down, and other trout (rainbows and browns) don't show up as frequently as they

did in the past. The salmon (coho and sockeye) stocking never worked out, but paddlefish, sturgeon and walleye catches are better than ever, and sauger fishing is good at the head end of Fort Peck Reservoir and below the dam. Two fisheries workers at Fort Peck now continue the research started in 1948. A paddlefish study is in progress, funded by the FWS, and studies of the fishery in the free-running Missouri both above and below the reservoir are continuing.

Commercial fishing for rough fish like carp, river carpsucker, goldeye and smallmouth and bigmouth buffalo started in 1957 in an attempt to reduce food and space competition for game fish. Since 1957, over 7 million pounds has been harvested.

The parks program around Fort Peck Reservoir started in the early 1940s. Rock Creek and Hell Creek State parks and the Pines Recreation Area were developed mainly by the Corps of Engineers as part of the Fort Peck Dam Project. Today, Rock Creek and Hell Creek Recreation areas are a part of the state park system and are managed by the department. The beautiful Fort Peck Dam Recreation Area, constructed and cooperatively maintained by the corps, state and FWS, is a popular year-round, wildlife-oriented recreation site. With a 38-year investment of money, time and effort, it's easy to understand the state's continuing interest in the CMR.

ADMINISTRATIVE TRANSFER

The change in management authority that took place on the CMR in winter 1975 was an example of power politics. The range's 1936 charter placed the area under the authority of two agencies that later became the BLM and FWS. It was like having a ranch with two foremen. With two sets of regulations, two groups of administrators, two budgets and two different programs, the situation was impossible. In 1973, the wilderness question brought this issue to a head. At that time, the FWS had wilderness authority and the BLM did not.

In spring 1973, the Washington, D.C. FWS office proposed that it be given exclusive jurisdiction of the Kofa and Cabeza Prieta Game ranges in Arizona, the Charles Shelton Antelope Range in Nevada and the CMR. According to the proposal, the FWS would close the areas to prospecting and mining, add additional acreage, cancel grazing permits under the Taylor Grazing Act and place current grazing permittees under regulations governing grazing on national wildlife refuges. The proposal involved over 3 million acres.

That winter, the Assistant Secretary of the Interior, responsible for the BLM, proposed a compromise: The FWS would receive jurisdiction on the two Arizona refuges and the Charles Shelton Antelope Range, and the CMR would be placed under exclusive jurisdiction of the BLM. Wilderness on all four refuges was discussed simultaneously.

The political situation heated up in summer 1974. Arizona's powerful congressmen, Sen. Barry Goldwater and Sen. Sam Steiger, speaking for mining and livestock interests, opposed transfer of the Arizona refuges to the FWS mainly because of the wilderness issue. The BLM became aligned with the mining and livestock lobby, was pictured as opposing wildlife and wilderness, became classed as a developer's pawn and received a lot of bad press.

Much of the criticism was unfair; the BLM has changed in the last decade. It has a multiple-use program and a developing interest and plan for wildlife. It currently employs over 200 wildlife biologists and can point to some excellent examples of wildlife management, such as the Birds of Prey Area along the Snake River in southwestern Idaho. In Montana, the BLM has supported and funded waterfowl and upland bird research, especially on its grazing lands in northeastern Montana.

The FWS, on the other hand, has suffered since the mid-1960s with budget problems and its program in Montana in the early 1970s slowed considerably. It was not as strongly supported locally or as aggressive as the BLM. But the FWS has a proud tradition, many well-qualified biologists and over the years, has tallied some impressive wildlife achievements.

It was a fact that Dept. of Fish and Game employees who knew the situation were divided on which agency they would like to see running the CMR. Neither the department nor the Fish and Game Commission took an official position on the issue. It was clear the situation was going to be resolved in Washington, independent of Montana pressure. Also, department employees would be working with both agencies, regardless of the outcome.

On Feb. 15, 1975, Interior Secretary Rogers C. B. Morton announced he had decided the Kofa, Sheldon and CMR would be administered exclusively by the BLM. The FWS would receive the Cabeza Prieta. The 1.58 million-acre Desert National Wildlife Range in Nevada, which wasn't even in the original plans, was mentioned for administration by the FWS to even up the acreage.

It was a short-lived victory for the BLM. The environmental community was incensed and running on emotion, so leaders decided to take the issue to court and also appeal to Congress. A full-page ad was purchased in the Washington Post supporting FWS administration of the CMR. The signing organizations represented a dues-paying membership of over 4 million persons who were informed of the issue's progress through newsletters and magazines. On June 24, 1975, the District Court in Washington, D.C. issued a restraining order blocking Secretary Morton's transfer. In November 1975, the House passed HB 5512 prohibiting the Secretary of the Interior from transferring jurisdiction. Then on Feb. 17, 1976, the Senate passed the House Bill but amended it to permit exclusive jurisdiction by the FWS. President Gerald Ford signed the bill, and 10 days later the FWS received the CMR.

The two-year argument diminished the influence of northeastern Montana residents on future management of the CMR. Millions of persons had now heard of the CMR and, even though they would probably never visit it, they would be watching.

continued on page 22

The Catchall

Predator Abundance Survey Results Released

Results of the sixth annual (1977) U.S. Fish and Wildlife Service survey of relative predator abundance indicate that trends in coyote populations in Montana are identical to those in most other western states.

Commonly called the "scent post survey," the study is designed to show year-to-year fluctuations in visits to standardized scent station lines by predators, particularly coyotes. It reveals only apparent year-to-year changes in population levels over broad areas, such as states. Results are *not* intended to be a census and "relative abundance" means only broad differences in numbers of animals in different local areas.

Surveys were started in the 17 western states in 1972 and designed to provide statewide coverage. Later, Iowa and Minnesota were added to the original statewide surveys, while Wisconsin and Illinois have established lines in only a few areas.

Taken annually in mid-September, the overall western surveys from the six years they have been run show that coyote visits:

- increased 10% from 1972 to 1973,
- increased another 10% from 1973 to 1974,
- declined by 5% from 1974 to 1975,
- declined another 7% from 1975 to 1976 and
- declined an additional 14% between 1976 and 1977.

In Montana, coyote visits:

- increased 15% from 1972 to 1973,
- increased another 10% from 1973 to 1974,
- declined by 5% from 1974 to 1975,
- declined by another 2% from 1975 to 1976 and
- declined an additional 21% between 1976 and 1977.

The large decline in scent post visits in Montana in 1977 was not uniform statewide and some individual lines actually showed increased visits. It will be interesting to see how the severe 1977-78 winter in eastern Montana will affect surveys to be conducted this fall. The large amount of carrion from winter-killed wildlife and livestock could have benefited coyotes; however, deep and generally widespread, long lasting snow made them more vulnerable to aerial hunting, at least in areas without extensive woody cover and/or rugged topography.

The scent post technique involves a survey line consisting of 50 scent stations adjacent to the edge of an unpaved road. Stations are spaced 0.3 mile apart along a continuous route and are alternated from the left to right side of the roadway to reduce the influence of wind. Each station includes a circle of sifted earth three feet in diameter, in the center of which is placed a small, perforated plastic capsule filled with an artificial attractant or scent.

Weather permitting, each line is checked daily for four consecutive days and animal visits (based on tracks) are recorded. The earth is then smoothed over so new tracks can be distinguished on subsequent days. The index of coyote visitation for each line is calculated as follows:

$$\frac{\text{total coyote visits (for all four nights)}}{\text{total number of operable station nights}} \times 1{,}000 = \text{index}$$

The maximum number of operable station nights is 200 (50 stations x four nights); however, some stations are inoperable (coyote tracks couldn't have been detected even if the station had been visited) because of weather, vehicles, cattle or other animals.—*Philip Schladweiler*

Thoreson Wins Conservation Award

Three Montanans, including Nels Thoreson, supervisor for the Dept. of Fish and Game's Great Falls region, were selected as recipients of the 1978 American Motors Conservation Awards. The other Montana winners were John J. Craighead, Missoula, and Doris H. Milner, Hamilton.

The national awards are presented annually by American Motors Corp. to 10 professional and 10 nonprofessional conservationists who have shown dedicated efforts toward conservation of the nation's renewable natural resources.

Thoreson was selected because of his leadership in the successful fight to include the upper Missouri River under the Wild and Scenic Rivers System. He spoke to opponents and proponents of river preservation, showed slides, participated in studies, hearings and meetings and worked closely with the late Sen. Lee Metcalf in preparing the final wild and scenic rivers legislation. In addition, he was principal consultant to the Bureau of Land Management (BLM) in preparing the multiple-use management plan for the area. Thoreson, who also farms near Belt, was honored by the BLM in 1977 for his work on the project.

Craighead, formerly a fish and wildlife biologist for the U.S. Fish and Wildlife Service and leader of the Montana Cooperative Wildlife Research Unit, was an early proponent of wilderness preservation and the first to make an objective, quantitative assessment of streams and rivers for the national rivers system. Long recognized as a pioneering wildlife researcher, Craighead's grizzly bear studies, conducted over a decade, have helped foster wide public interest in wilderness species and the special need for predators. They have also marked the development

Nels Thoreson

of radio telemetry as a useful tool in tracking animals and gathering scientific data. In addition, his work on endangered species preceded official programs. Craighead now is conducting research under grants and contracts administered through the wildlife research unit.

Milner, a homemaker, was one of four women selected for the award this year. A long-time conservationist, she became actively involved in conservation activities in the mid-1960s when proposed timber cutting threatened to destroy the wilderness characteristics of the Magruder Corridor in the Selway-Bitterroot National Forest. She chaired a committee which succeeded in halting the logging proposals. She later

recycled paper

became involved in other issues, including land-use planning, forestry and agricultural practices, wilderness, watershed management, subdivision and development and state and national natural resource legislation. A sense of fairness and humor, courage, knowledge of issues and an ability to communicate with adversaries as well as friends were cited by the awards committee as reasons for her selection in the nonprofessional category. She has served as president of the Montana Wilderness Assn., vice president of the Pacific Northwest Conservation Council and a member of the Montana Conservation Council.

Winners of the awards, which have been presented since 1954, receive bronze sculptured plaques and $500 honorariums.

Although Montana ranks third behind California and New York in the *total* number of awards received by residents of the state, on a per-capita basis, Montanans have won more of the awards—19—than have the residents of any other state. Californians and New Yorkers have received 38 and 26 awards, respectively. Michigan ranks fourth with 18 winners, and Oregon and Pennsylvania have had 17 each.

The 1978 winners were selected by a committee of conservationists which included Jean Anderson of Billings, environmental quality chairman for the U.S. League of Women Voters.

Seventeen other Montanans have been honored with the awards in the past. They include: Carolyn Madden, Anaconda, 1955; the late Guy M. "Brandy" Brandborg, Hamilton, and Robert Cooney, Helena, 1959; Dr. Joseph W. Severy, Missoula, and Winton Weydemeyer, Fortine, 1960; Charles H. McDonald, Stevensville, 1961; Lillian Hornick, Missoula, and Harry B. Mitchell, Great Falls, 1963; Donald Aldrich, Missoula, 1966; Dr. W. Leslie Pengelly, Missoula, 1967; John M. Schroeder, Lolo, 1968; Eldon Smith, Bozeman, 1969; Frank Dunkle, Helena, 1971; Dale Burk, Stevensville, 1973; James A. Posewitz, Helena, 1974, and Phil and Robin Tawney, Helena, 1976.—*Bill Phippen*

State Trapshooting, Skeet Meets Conducted

The 84th annual Montana State Trapshooting Tournament was conducted at the Billings Trap Club July 5-9. High overall scorer for the five-day shoot was Ed Renfro, Dillon, with 570 targets of a possible 600. Joe Petroni, Butte, was second at 569. Bozeman shotgunner Donald Huffman claimed the state 16-yard singles title with 198 of a possible 200. The Montana handicap championship went to Rodney Nick of Helena with 97 of 100, and the state doubles title was won by Renfro with a 99.

Kevin Gordon, Bozeman, claimed the 1978 Montana Skeet Shooting Championship, hosted by the Missoula Trap and Skeet Club July 14-16. Gordon broke 386 of a possible 400 targets to best last year's champion, George Tabish of Missoula. Tabish fired 380 in the meet. Women's champion was Donna Tabish, Missoula; junior champion was Dart Sewall of Great Falls, and senior champion was John Abbey, also of Great Falls.—*Dave Books*

Employees Establish Trent Memorial

Doug Trent

Helena Super Save grocery employees recently donated $100 to the Dept. of Fish and Game in memory of fellow employee Douglas Trent. Doug, 19 and a 1977 graduate of Capital High, died in an auto accident April 25. He was an avid sportsman throughout his life, and, as requested, the donation will be applied toward one of the department's next purchases of land for wildlife management purposes.—*Bill Phippen*

Bird Stamp Contest Rules Announced

Montana's wildlife artists take note. Beginning this fall, the Dept. of Fish and Game will sponsor an annual art contest to select a design for the department's game bird hunting stamps. All residents of Montana are eligible to enter the contest.

Rules include: Designs entered must be horizontal, five inches high by seven inches wide. If mounted on a mat, it must be no larger than eight inches high by 10 inches wide. Frames may not be used, nor may the art work be under glass; however, clear plastic coverings, if they can be readily detached, are acceptable.

Art work considered may be either black and white or multicolored, and in the media of acrylic oil, watercolor scratch board, pen and ink or similar medium, and feature any of Montana's upland game birds or migratory waterfowl (swans, geese and ducks). Hunting scenes or other features may be part of the art work, but the bird species depicted must be the dominant feature.

All entries must be the original work of the artist and may not have been a winning design in the federal duck stamp competition; the work cannot depict a species which was a winning entry in any of the preceding three years of the contests. Photographs will not be considered and only one entry per artist may be submitted per year. Name and address of the artist should be written on the back of the art work. No scroll work or lettering may be included on the design itself.

A panel of three to five individuals with expertise in art, ornithology, bird hunting or conservation will be selected by the Dept. of Fish and Game commissioners and director to judge the contest. Although no prize money will be awarded, the winning artist will receive 10 bird stamps depicting the winning design.

Entries will be accepted between Oct. 1 and Nov. 30 of each year and the judges will choose the winner by Jan. 15 of the next year. All art work will be returned to participating artists by Feb. 15 of that year.

More detailed rules or further information may be obtained from Steve Bayless, special projects coordinator, Dept. of Fish and Game; Helena, MT 59601.—*Bill Phippen*

What About Shooting Marked Animals?

Wildlife managers require reliable information on movements and distribution of wild animals in order to formulate sound management programs. In the past, researchers usually collected this kind of information by neckbanding several animals at a time and then making occasional observations, as opportunity and luck permitted. In many cases, neckbanded animals were never seen again after initial capture; other observations were few. This was especially true of such species as elk, deer and bear while on their spring, summer and fall ranges in forested areas.

For the past 10 years, the Montana Dept. of Fish and Game and other resource management agencies have used

a technique called radio tracking. This technically advanced tool has provided wildlife managers with a wealth of detailed knowledge and insight into wild animal movement and distribution. Once placed on the animal, the radio collar operates continuously and, depending on the size of the battery, has a life of from a few months to four years. (See "Tracking the Wild Ones," by Ken Walcheck, in the March/April 1978 *Montana Outdoors*.)

Although it is not illegal to shoot at or kill marked animals, it would help wildlife management and research personnel if such animals were allowed to live as long as possible. Much time, effort and money usually go into tracking these animals and year-to-year information on the way a marked animal uses its environment is valuable.

The chance of encountering a marked animal is minimal, but if you do, please consider not shooting it, especially if there are unmarked animals from which to choose. *If a marked animal is killed—either intentionally or accidentally—please return the neckband, radio collar and/or other markings such as ear tags to a department employee as soon as possible.*

An equally important piece of information is the approximate location in which you killed the animal. The investigator responsible for marking and tracking this particular animal can then utilize this information. The individual returning the neckband, radio collar or other markings will receive any information biologists have gathered during the marking and tracking operation.—*John Cada, Terry Lonner*

FWS Releases Hunting, Fishing Survey

Almost half of the U.S. population hunted, fished or participated in some wildlife-related recreation in 1975, according to survey results released recently by the Dept. of the Interior's U.S. Fish and Wildlife Service (FWS).

The "1975 National Survey of Hunting, Fishing and Wildlife-Associated Recreation" found that almost 96 million Americans 9 years of age and over participated in one or more forms of wildlife-related recreation. Included in this figure are 20.6 million hunters, 53.9 million anglers and over 49 million persons who observed wildlife.

The survey is taken every five years for the FWS to measure the degree of participation in hunting and fishing. Survey results provide state and federal planners with information useful in managing fish and wildlife resources and in providing adequate recreational opportunities for the public.

The 1975 survey was expanded in both scope and design to obtain information about people who do not hunt or fish. In addition, the survey includes more detailed information from a broader range of participants than past surveys. Estimates are based on telephone interviews with 106,000 households in 50 states and detailed questionnaires completed by more than 20,000 individuals.

The study, which cost $985,000, is paid for by the same recreationists who benefit from the data. As in the past, costs are paid from excise taxes on sporting arms, ammunition, archery equipment and fishing tackle. National Analysts, a division of Booz-Allen and Hamilton, conducted the survey.

According to the 1975 statistics, 11% of the population participated in hunting as compared to 12% in 1970. Fishing, however, has remained at 29% of the population in the five-year span. Other highlights of the report include: Americans spent 478.6 million days and $5.8 billion to hunt. This compares with the 1.3 billion days and $15.2 billion expended by anglers. These figures include $4.6 billion spent in restaurants, markets and other businesses for food; $1.4 billion spent on motels and other lodgings; $4.3 billion spent on hunting and fishing equipment and $8.1 billion spent on transportation.

Hunting use was measured by species, while fishing was measured by water type and, in some cases, by species. Also compiled were estimates on the number of persons who engaged in wildlife photography (15 million), recreational shooting (21.6 million) and crabbing, clamming and shell collecting (25.3 million).

One especially significant change from the 1970 survey was the increase in the number of individuals who photograph wildlife—from five to 15 million persons.

continued

Moving?

If you're planning to move in the near future, please attach the label from your last issue and send it and your new address to *Montana Outdoors,* Dept. of Fish and Game; Helena, MT 59601.

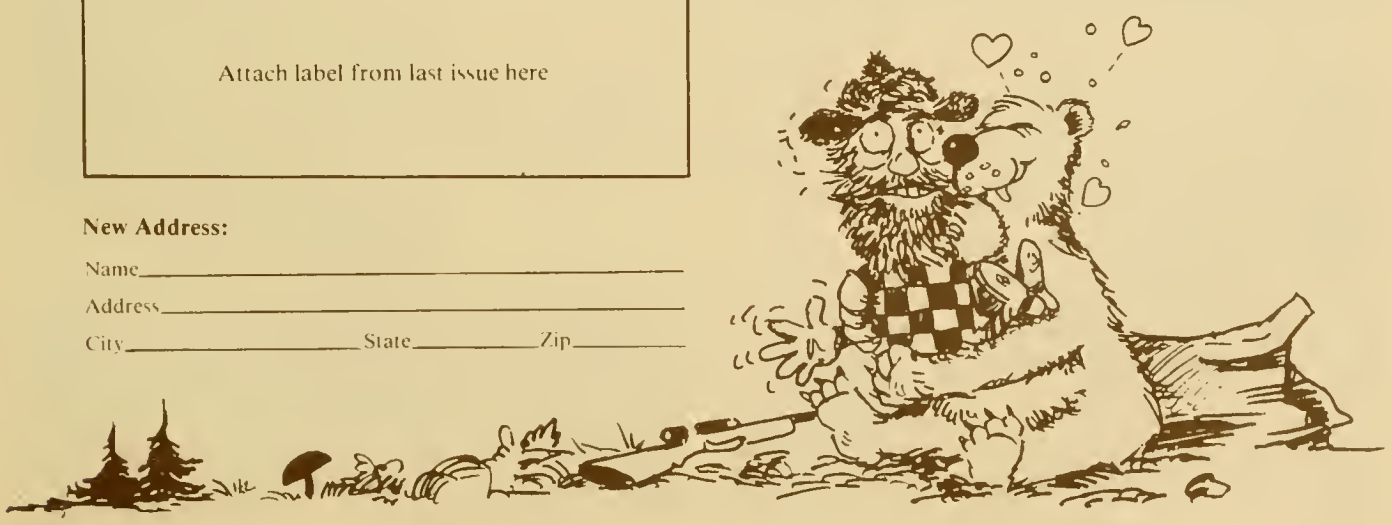
Attach label from last issue here

New Address:

Name_____

Address_____

City_____ State_____ Zip_____



Statistics reveal that anglers are more apt than hunters to be older, have higher incomes and live in cities. Those who fish have an average age of 34 years and an average household income of $15,300. More than two-thirds reside in metropolitan areas. Hunters have an average age of 33 years with an average household income of $14,700. Fifty-six per cent reside in metropolitan areas. Women comprise 8% (1.6 million) of hunters as opposed to 31% (16.7 million) of anglers.

Hunters perceive posting of land and loss of game habitat as the most serious problems that impact their recreational activities. Those who fish believe water pollution is the most serious threat to their sport.

The introduction points out that "results shown in the graphs and tables [in the report] are a compilation of statistics obtained from information gathered at the state level. The fish and wildlife agency of each state reviewed the results derived for its state prior to incorporation into the national statistics."

Copies of the survey may be obtained from the Supt. of Documents, U.S. Government Printing Office; Washington, D.C. 20240 at a cost of $3.—*Fish and Wildlife Service*

Regulation Equals Registration?

An example of how gun control could have been instituted without a single vote being cast can be seen in the Treasury Department's Bureau of Alcohol, Tobacco and Firearms' (BATF) recent attempt to establish nationwide gun registration by simple regulation.

On March 15, the BATF published proposed regulations which would have: (1) required gun dealers to submit quarterly reports to the agency listing all firearms transactions during the previous three months, (2) granted BATF authority to call in Treasury Form 4473 which, since 1968, all citizens have had to complete to purchase any firearm from a dealer and (3) set up a special gun serial number coding system to facilitate confiscation of federally banned firearms, should such legislation ever be passed.

The National Rifle Assn. and pro-gun forces in Congress argued that the BATF violated its statutory authority, that Congress consistently rejected the idea of federal gun registration and that no agency has the right to circumvent Congress and legislate gun control on its own. After gun owners flooded the Treasury Dept. and Congress with letters opposing the proposal, the department vowed not to put its controversial regulations into effect without approval from Congress.—*National Rifle Assn.*

Contributors

The Charles M. Russell National Wildlife Refuge occupies over 1 million acres in a little visited part of Montana. Yet, the area hides an incredible array of treasures: the distant footsteps of *Tyrannosaurus rex*, king of the dinosaurs and the largest flesh eater ever to stride the planet; the faraway sounds of the country's first settlers, explorers and mountain men in search of a dream that sometimes turned to dust; the bones of the now-extinct Audubon's bighorn sheep and Montana's free-roaming buffalo. The refuge has been faced with administrative problems ever since it was established and some of these problems remain today—cattle grazing, control of coyotes and prairie dogs and wilderness classification, to name a few. But as **Mike Aderhold** points out, it "survives today as one of the nation's best examples of a prairie ecosystem because it has been 'bigger' than any individual or group that has tried to control it." Aderhold is the department's information officer for the Glasgow region. He previously worked with the Corps of Engineers, Forest Service and Fish and Wildlife Service and holds a B.S. degree in zoology from the University of Michigan, Ann Arbor, and an M.S. in wildlife management from the University of Montana, Missoula. Turn to "The CMR: Rich Beyond Measure" on page 2.

* * * * *

There's no better way to put the by-product of a successful hunting season to practical use than to tan the hide. **Vince Yannone** provides step-by-step instructions that are adequate even for a first-time effort. The steps include: "Securing a Hide," "Skinning and Preliminary Preparation," "Fur or Leather?," "Tools," "Tanning" and "Finishing." As Yannone points out, "The leather or fur produced by home tanning can be a source of great satisfaction and pride. There's a good feeling in knowing you are participating in a task that dates back to the beginnings of civilization." The guide also contains photographs of some of the essential tools and instructions on how to operate them. A novice tanner can't expect his or her results to equal professional standards on the first try, but skill will rapidly increase as will the quality of the finished product. Yannone is the assistant chief of the department's Conservation Education Bureau. He has also worked as the educational assistant and hunter safety coordinator for the department. He holds an M.S. in zoology from the University of Montana. To answer your questions about "Tanning Your Hide," turn to page 15.

* * * * *

Montana Outdoors readers are frequently treated to the **Ken Walcheck** byline, and this issue is no exception. In "The Least Bothered Animal on Earth," Walcheck continues the nongame series with a look at the skunk. As he notes, a Dept. of Agriculture survey awarded the fume thrower the title of most unpopular animal in this country. But the skunk also does some good deeds, such as feeding on agricultural pests. The pen and ink illustration for Walcheck's article once again comes from Takehiro Taira who operates Leisure Art Studio in Kalispell, Mont. To learn more about the bushy-tailed carnivore that shoots back, turn to page 18.

Hunters are found nearly everywhere, but a bird hunter is a special, if unpredictable, breed. Bird hunters share a common creed: "to enjoy every second of every minute of every hour of every hunting trip and to protest violently when the sun sinks beneath the horizon and shooting hours are over." If the hour is late and the company agreeable, a bird hunter is likely to soar off in long, rambling anecdotes that really don't mean much—except to another bird hunter. To find the answer to the question, "What is a Bird Hunter?," turn to page 20. Walcheck is the department's information officer in Miles City. He holds a B.S. degree in wildlife conservation and biology from Wisconsin State University, Stevens Point, and an M.S. in applied science (ecology) from Montana State University, Bozeman.

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MO wishes to extend special thanks to **Ron Jenkins** for his cover painting of the blue grouse and for the watercolor portfolio featuring "Grouse of Montana," beginning on page 27. The paintings depict the grouse as you are likely to see them in the field, not in their colorful mating plumage of spring. They provide an artistic and welcome addition to this issue.

TANNING YOUR HIDE

by Vince Yannone

The tanning of animal hides is not very complicated—it requires some skill, but more important, it requires patience and effort. An inexperienced tanner's first efforts won't equal professional standards, but after a few tries, skill will rapidly increase.

Step 1—Securing a Hide

The beginner should use small hides such as rabbits, muskrats, fox, bobcats or coyotes because little fat exists between the hide and muscle tissue. Beavers, badgers, deer and elk are more difficult for the novice to handle.

Step 2—Skinning and Preliminary Preparation

The first and one of the most important steps in successful tanning is skinning the animal. First, hang the animal carcass head down with the hind legs at arm level. The skinning method depends on the type of animal. Rabbits, fox, bobcats, muskrats and coyotes should be caped. (The entire skin is removed from the carcass without splitting the hide up the stomach. Cut the hide from the anus to the lower part of the leg, running this cut along the back side. Skin the animal forward, toward the head. When you are finished, the skin will resemble a glove.) This method works best with these animals because of the small fat reserves underneath the hide.

Badgers and beavers store fat under the hide and are difficult to skin by caping. These animals, as well as the larger mammals such as deer and elk, should be split up the stomach. This technique works well when the hide is difficult to remove from the carcass.

The next step involves preparing the hide for the tanning solution. First, remove all flesh from the hide. Fleshing is a difficult and time-consuming job. Remove all excess muscle and fat tissue. Salting the hide sometimes helps in this step. Fine-grained, noniodized salt works best because it is easier to rub into the hide. Place some salt in your hand and rub it into a small area, using a circular motion, until you have treated the entire surface. Use about one pound of salt for each pound of the hide's weight. The salt helps remove water from the fat and muscle tissue and makes the tissues easier to peel from the skin. It also helps preserve the skin.

The salted skin may be stored after you have removed all the muscle and fatty tissue. Roll it up, place it in a plastic bag and put it in a freezer; it will keep up to a year.

Garments made from home-tanned leather. F&G photos: Paul Bushaw and Donita Sexton

Step 3—Fur or Leather?

Depending on what you want, tan with the hair on or off. By leaving the hair on, you create a "fur," but with the hair off, your finished product is leather. Many people find animal furs attractive and many factors affect the desirability of a given fur, such as size, color and thickness. Thick, heavy furs seem to have the most appeal.

When planning to remove the hair from the hide, use a solution of eight pounds of hydrate lime to four gallons of water. (You can purchase hydrate lime and other chemicals needed in the tanning processes described here at any large drug store.) Before placing the hide in the solution, make sure you have fleshed it well and washed and cleaned it to remove dirt and blood. Use cold water and a mild soap, then rinse it in cold water to remove all traces of soap.

When you place the hide in the solution, smooth it out to insure that the lime water reaches all parts of the hide. Leave the hide in this solution from one to two weeks. During this time, slosh the hide around in the solution three times a day. After soaking, the hair should come off easily by brushing over it. To neutralize the action of the lime, soak the hide for a day in a concentration of two ounces of lactic acid to 20 gallons of water. Then,

wash the hide in clean, cold water.

Step 4—Tools

Tools are quite simple and can be bought inexpensively or constructed at home. You will need a couple of wooden or plastic buckets, tubs or barrels for the many necessary washings and soakings. Do not use metal buckets because the metal reacts with the tanning solution.

A sharp knife is needed for fleshing and removing the hair.

A fleshing beam (a board laid over a low sawhorse) aids in removal of flesh and hair. You can use scrap lumber to make the fleshing beam. I recommend a 3- x 12-inch board, but 2- x 6-inch boards or 2- x 10-inch boards will also work. The board should be as wide as possible to lessen the chance of cutting the hide while fleshing.

A breaking stake helps in breaking down the fibers that make the leather stiff. In most cases, breaking is desirable and worth the extra effort. The breaking stake can be constructed from scrap lumber. The blade height varies with the height of the individual using it (see photo). Place your legs or knees on either side of the blade and then pull the hide back and forth over the tapered, blunt edge. Your body weight helps stabilize the tool.

The wood- or steel-bladed slicker also helps in breaking the hide down. The blade portion should be four or five inches wide, but the handle size may vary depending on what is comfortable. The slicker is pushed in all directions from a fixed point on the hide. This dull-edged tool helps to further break up the fibers in the leather. In my opinion, both the slicker and breaking stake are necessary to produce a quality final product.

Other helpful tools include rubber gloves, a sand block, a comb or brush and a scale. Since many of the solutions are caustic, wear rubber gloves. (Also, dispose of these toxic solutions where they cannot affect humans, plants or animals. Don't pour them into drains leading to a sewer or septic tank system. They will destroy the bacteria essential to the proper working of the septic tank. To dispose of the solutions, dig a hole in your back yard and pour them into it; after they have been absorbed by the soil, fill in the hole.)

A sand block helps smooth the leather after tanning. Use a comb and brush to groom tanned hides with the hair left on. In many tanning formulas, the amount of chemical used is determined by the weight of the hide being tanned, so access to a scale is handy.

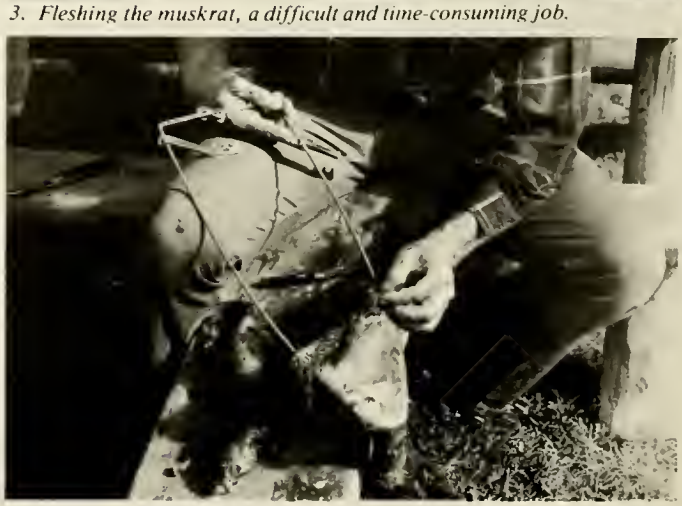
Step 5—Tanning

You are now ready for the actual tanning. Although there are many tanning methods, the alum method described here is probably easiest. This method produces

1. Essential tools for tanning: knife, breaking stake and wood slicker.

3. Fleshing the muskrat, a difficult and time-consuming job.

2. Cape skinning a muskrat on the fleshing beam, another essential tool.



4. Placing a skin for commercial sale onto a stretcher.

either leather or fur. It works especially well with fur because it doesn't change the color and it acts quickly and doesn't loosen the hair.

Put 15 gallons of clean water and 12 pounds of ammonia alum or potash alum into a large plastic container and stir frequently until completely dissolved. In another bucket, dissolve three pounds of washing soda (crystallized sodium carbonate) and six pounds of noniodized salt in five gallons of water. The soda crystals must be clear and glasslike—do not use white crusted lumps.

Pour the soda solution into the alum solution very slowly, stirring constantly. Allow at least 10 minutes for this step. If the soda solution is poured too rapidly, it turns milky and will not tan properly. After making sure the solution is cool, add enough water to almost fill the container. Keep the hide in the solution for six to seven days, stirring it six to eight times a day.

Step 6—Finishing

The steps for finishing are the same for alum- and chrome-tanned hides. Remove the hides from the tanning solution and drain and dry them slowly. Wash the hides well in clean, cold water; then mix equal parts of neat's-foot oil and tallow so the mixture is soft and pasty, but not liquid. While the hide is still damp, liberally apply the mixture to the grain (hair) side. After the mixture has been absorbed and the leather is dried a little more but is still slightly damp, begin working the leather to assure that it will remain soft and pliant. This is perhaps the most strenuous step.

5. Breaking a deer hide down with a breaking stake.

6. Breaking a moose hide down with a wood slicker.

Place the damp leather over the breaking stake and "work" over the hair side in all directions with the wood or metal slicker. You can also break down the damp leather by vigorously pulling it back and forth over the edge of a small, smooth breaking stake. Frontier settlers often used the back of a chair. The more time you put into this step, the softer the hide will be. Work it for 20 minutes or so, then rest. This step requires considerable energy—don't give up too soon.

Alum-tanned leather almost always dries hard and stiff the first time. So dampen it again and rebreak it. In some cases, you must do this repeatedly and you may need to apply more neat's-foot oil and tallow.

By repeated dampening, breaking and slicking, you can make the leather as soft and pliable as desired.

In recent years, a new method of tanning, the chrome process, has been developed. It is so named because the method utilizes chemicals containing chromium. Although the process requires great care, it saves time in the actual tanning process. Prepare the tanning solution and let it stand at least 48 hours before it is to be used. For a medium-sized hide, dissolve 1-¾ pounds of sodium carbonate crystals and three pounds of noniodized salt in 1-½ gallons of warm, soft water in a wooden or plastic bucket. In another container, dissolve six pounds of chromium potassium sulfate crystals in 4-½ gallons of cold water. This dissolves slowly and must be stirred constantly. When the crystals are completely dissolved, slowly pour the first solution into the second, stirring constantly. This step requires 10-15 minutes.

When you are ready to tan, place one-third of this solution into a bucket and add 15 gallons of clean, cold water and mix well. Put the hide into the solution, making sure that it is smooth. Stir frequently, especially the first day. Repeat this process, using the remaining soda-chrome solution. Leave the hide in the solution for three days, stirring three or four times per day. Lightweight or thinner hides require less time in the solution than larger or heavier hides.

There are two ways to determine if the hide is properly tanned (this works for both the alum and chrome processes): (1) If the hide is the same color all the way through, it is tanned. Hides not thoroughly tanned will have a light spot in the center. (2) Cut off a small piece of the hide and place it in a pan of boiling water. If it curls and hardens, the hide is not tanned. If the piece is not affected, tanning is complete.

After tanning is complete, wash the hide in a solution made by combining one pound of borax and 20 gallons of water. (Borax is generally available at grocery stores.) Leave the hide in this solution overnight. The following day, wash and rinse the hide in clean, cold water. Proceed with the finishing (Step 6).

The leather or fur produced by home tanning can be a source of great satisfaction and pride. There's a good feeling in knowing you are participating in a task that dates back to the beginnings of civilization. Besides, there's no better way to put the by-product of a successful hunting season to practical use. ■

The Least Bothered Animal On Earth

by Ken Walcheck
illustration by Takehiro Taira

MORE THAN THREE decades ago, I was bamboozled by some slick-talking cousins into a venture—a snipe hunt—"guaranteed" to earn me a few dollars and an experience worth remembering.

They drove me down a winding, washboard country road about midnight and then I was strategically placed in a wooded grove with a couple of other "snipers" my cousins had managed to hoodwink. We were instructed to stand by with open burlap bags while the beaters (my cousins) herded the long-billed feathered projectiles toward us and, with luck, into the sacks. Suddenly, something moved. We hunkered down, ready to bag a few snipe.

But instead, before our straining eyes, six striped skunks drifted across the moonlit meadow. With a couple of owls providing background music, the skunks formed a loose circle, noses pointing toward its center. As if on cue, they hopped forward, with their legs rigid and their tails wagging like ostrich plumes, until their noses touched. Then, in chorus-line style, they hopped back, forming the outer circle again. We watched, open-mouthed and wide-eyed, as the skunks performed this strange minuet a half dozen or so times.

Simultaneously, all tails dropped

to half mast and they marched in procession, nose to tail, in our direction. We snipers speedily took off for home with empty bags trailing in the wind.

A member of the wide-ranging weasel family, the striped skunk, *Mephitis mephitis*, is probably one of the best known of all North American mammals. Unlike many other animals, it has adapted well to man's activities. Its present range extends from central Mexico to the Northwest Territories in Canada and encompasses all states in the continental United States.

A skunk's fearsome armament consists of two grape-sized glands, situated on either side of the rectum, embedded in the muscle. When contracted, the glands can direct two streams of fine spray up to 20 feet. The glands are connected by ducts to a pair of small nipple-like jets, which are hidden when the tail is down. When the glands are compressed, they can fire two burning bursts simultaneously or singly, depending on how precarious the situation is. The striped carnivore can fire five or six bursts of the devastating fluid without reloading.

The vile concoction, known chemically as butyl mercaptan, contains a skin-burning sulfide which can cause temporary blindness and nausea—even convulsions and loss of consciousness if a relatively weak animal is sprayed. Under favorable conditions, humans can detect the pungent scent for about a mile. The odor clings like mustard gas and it won't scrub, scrape or launder away with conventional cleaning products. However, acidic agents—such as tomato juice or vinegar—at least bring the smell into the bearable range.

The skunk's defensive mechanism has long been feared, as well as misunderstood. Normally peace loving, the skunk discharges its acrid secretion only as a last resort. If pushed, the furry sharpshooter lowers its head, stamps its front feet and sometimes emits a warning growl or hiss. Warning number two is more suggestive—the skunk raises and arches its black and white plume high above its back. Then if a compromise still can't be reached, it snaps into a U-shaped position, with head and rear directed toward the enemy, and fires one or more scented missiles.

Despite the skunk's malodorous reputation, it performs beneficial deeds such as feeding on agricultural pests (grasshoppers, potato bugs and Japanese beetles). In fact, skunks were such an efficient enemy of the hop grub in New York that legislation was passed to protect them. The animal's normal diet includes field mice, vegetation and insects. On the negative side, skunks are classified as a major carrier of the rabies virus to which all warm-blooded animals, including man, are susceptible. This is one reason why skunks should not be made family pets: Rabies vaccines *do not* immunize skunks against carrying the disease because the vaccines were developed for canine antibodies.

Skunks generally live in the abandoned dens of coyotes, foxes or other mammals and only occasionally excavate their own dens. They also use stumps, rock piles or refuse heaps and sometimes even set up housekeeping under a house or porch. If a skunk scratches out its own den, the burrow is usually simple. But one taken over from another animal may be quite elaborate, containing from one to five well-hidden openings that lead to a system of tunnels and chambers. The female lines one of the chambers with leaves and uses it for a nest.

Skunks begin to breed in late February or March after emerging from their dens. Squealing, growling, cuffing, head-on tackling and snapping of the jaws accompany sparring jousts between competing males. Despite the spirited display of aggressiveness, there seems to be a gentleman's agreement among the combatants and they rarely resort to chemical warfare. Vigorous copulations highlight mating sessions and four to six young are usually born in early May. Newborn skunks weigh about one-half ounce. Although almost naked at birth, they display the characteristic black and white color pattern of the adult. They are fully haired in about 13 days and their eyes open in 17-21 days.

The skunk was once heavily trapped, its soft fur cleverly dyed by furriers to imitate that of more valuable furbearers. Reprieve for the striped carnivore came when a law was passed requiring the labeling of fur coats as to the identity of the furbearing animal. Needless to say, sales rapidly plummeted and nature's most dreaded marksman once again became the least bothered animal on earth. ■

What Is A Bird Hunter?

by Ken Walcheck

Between the time a boy gets his first shotgun and the time he becomes a tottering old man, we find a delightfully unpredictable creature called a bird hunter. Such a person may be rich and well educated, or a seasoned laborer in bib overalls. But mark him well, wherever you cross his path; he's a gentleman and a proper person with whom to share a pot of coffee. Bird hunters come in assorted sizes, but all have the same creed: to enjoy every second of every minute of every hour of every hunting trip and to protest violently when the sun sinks beneath the horizon and shooting hours are over.

Hunters are found nearly everywhere—in creek bottoms, on steep ridges, in brushy coulees and bragging in offices, at field trials, sporting goods stores, conservation meetings, Sunday Schools, back rooms and board meetings.

When the work schedule is busy, a hunter is thinking of pointers, Labradors and country roads. When the boss wants him to impress a client, he may talk only of the triple he once bagged, the way ol' Red honors a point, the spring bird hatch or the prospects of his newest pup. And if the hour is late and the company sociable, his eyes sparkle as he soars off in long, rambling anecdotes that really convey nothing—except to another bird hunter.

A bird hunter is a study in contrasts: He is content with sardines and crackers for lunch at a country store, but his ulcer has to be pampered with a special diet when he's home. He has the energy of a tornado when he starts hunting, although it wears him out to walk to the office coffee pot. He has the lungs of a football coach when he yells at the dogs, but his secretary complains that he whispers all the time.

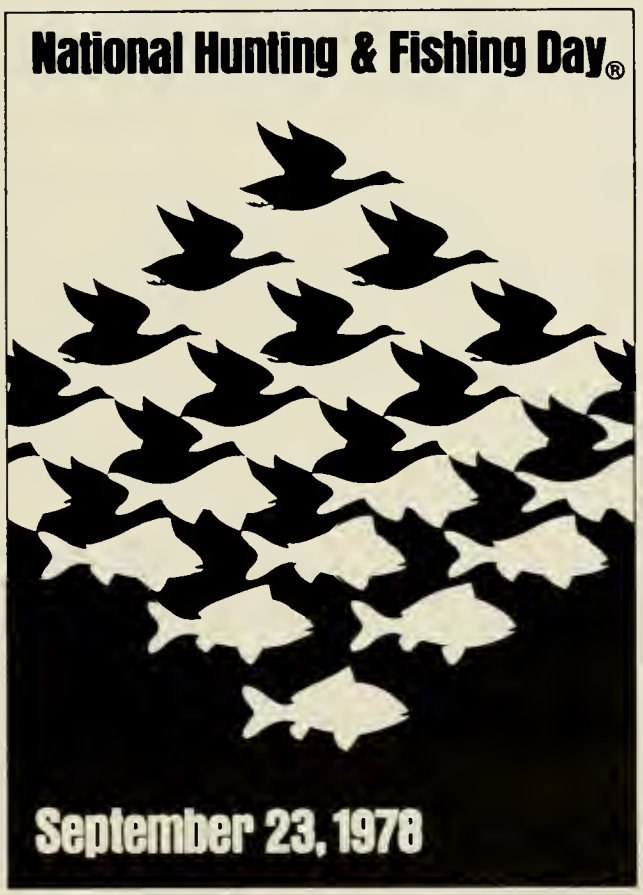
He likes "tin" pants, old guns, seasoned hunting hats, leaky boots, long weekends, all kinds of bird dogs, back roads, wool shirts, abandoned homesteads and questionable companions who are also hunters. He is not too fond of social gatherings between Labor Day and Thanksgiving, cats, neckties, weekend visitors, barbers and anybody who doesn't hunt. He solicits the company of people who hunt three months a year and talk about it 12.

Nobody is as early to rise or as late to supper as the bird hunter. Nobody else gets as much fun from chasing dogs, trampling brush and getting briar scratches. Nobody else suffers so silently with aching feet, twisted ankles and strained muscles. Nobody else can cram into one pocket a favorite knife, a handful of No. 6 shells, dog biscuits, a candy bar, a hunting license, farmer matches, a red handkerchief, last year's duck stamp, extra boot laces, a broken dog whistle and a bottle opener.

A hunter is a magical creature—you might get sick of his constant chatter about past hunting trips, but you can't lock him out of your heart. You can assign him itineraries in the spring, but you know where he'll be in the fall. When September rolls around, he'll be out in the field behind a young pup and an old veteran on the prowl for birds.

You might as well give up. The hunter is a child of nature who defies analysis. He's earnest in his work, but he's just a little more sincere when he's slow-trailing a jumpy covey. There's something about him that rings true. He admires and respects the birds he hunts, not just during hunting season, but 12 months out of the year. Although he dearly loves to hunt, he would rather come home empty-handed than with a limit of ground-sluiced grouse. He's a kindly person who asks no more of life than that the birds fly fast, the dogs hold tight and that everything has a sporting chance. ■

No matter how you look at it.



It works. For you.

The CMR (continued)

The 1976 administrative transfer immediately helped both the FWS and the BLM by bringing attention to problems with their wildlife programs, especially on the CMR. It also brought both agencies some needed additional wildlife funding.

The CMR has suffered since its creation because it didn't seem to have any overall wildlife program. Management just seemed to bump along from one problem to another. Managers appeared to be reacting to various pressures instead of initiating programs to benefit wildlife. In the heat of the competition for the wildlife refuge, the BLM released an 18-page statement on how it hoped to manage the CMR. After 38 years, that statement was a start.

One of the first steps the FWS took after gaining control was to set up a team to study the arguments of all groups interested in the refuge. The team is reviewing past and current wildlife actions, drafting policy and goal statements and conducting a series of local public meetings. The six major agencies involved (Corps of Engineers, BLM, FWS and the Montana departments of Fish and Game, State Lands and Natural Resources and Conservation) are represented on a steering committee. Private local interests are represented by an advisory board.

The five-person planning team includes a wildlife specialist who doubles as team leader, a range specialist, a soil specialist, a recreation resource specialist and a representative from the Dept. of Fish and Game who speaks for the state's recreation and wildlife interest. This team is responsible to the Billings FWS office. The group has been given until June 1980 to draft a management program for the CMR and also to write the required environmental impact statement.

The team has a most difficult assignment—one that has been postponed for the first 42 years of the refuge's existence. Any effective master plan should address: livestock management on the refuge; animal damage control; local interests versus national interests; wilderness; road, fence and reservoir construction; consumptive versus nonconsumptive wildlife recreation; wildlife goals by species; refuge management to meet these wildlife goals; adjacent BLM programs, and the whole issue of who is in charge of what, where. Finally, the team must write the master plan in plain language and circulate it widely so that for the first time, citizens interested in the refuge will know where the CMR is trying to go.

While all this planning is going on, the FWS budget for the CMR has dramatically increased. In 1978, it received $185,000 for reservoir construction and rehabilitation, $22,000 for fence rehabilitation, $238,000 for new fencing and $65,000 for a boundary survey. In 1979, it expects $85,000 for survey work, $125,000 for fence and water development and $73,000 for road rehabilitation. Ironically, these funds will come in *before* completion of the master plan. Area newspapers have carried accounts of purchase by the FWS of heavy equipment and loads of fencing materials and assignment of a 200-person Young Adult Conservation Corps (YACC) during summer 1978. These activities have caused some concern, because development can ruin as well as enhance an area like the CMR.

The CMR National Wildlife Refuge survives today as one of the nation's best examples of a prairie ecosystem because it has been "bigger" than any individual or group that has tried to control it. Relatively few people knew about the refuge and it's so remote that few recreationists outside of eastern Montana have taken the time to visit it.

All that is changing, though. Every year, more and more people travel through northeastern Montana. Pressures for new and surfaced roads, year-round access, recreation development and more intensive management increase annually.

It's wise to remember that as big as the CMR is, its character—the area's personality—is tied to an even bigger area—the over 2 million acres of public land surrounding it. The CMR cannot be considered a wildlife island. Because of this, the manner in which adjoining lands are managed is of crucial importance to the wildlife that use the refuge. So, in effect, the resources that make up the CMR are still under multiple management. It becomes clear the biggest concern on the CMR is not cattle, coyotes or prairie dogs, but the working relationship of those who share an interest in the area. ■

Sharp-tailed grouse

Dear F&G

Debate on Wilderness Continues

We are fortunate in Montana to still have available a large acreage of roadless and undeveloped lands in our national forests. These lands provide some of the finest hunting, fishing and outdoor recreation obtainable anywhere. Many of us have assumed these lands would always remain wild, but RARE II, the second nationwide roadless area review and evaluation, will soon divide them into three broad categories: (1) lands recommended to Congress for wilderness designation, (2) lands recommended for further planning in cases where more information is needed for final decisions and (3) lands recommended for non-wilderness uses, such as roading and logging.

RARE II began in summer 1977 with a nationwide inventory of our roadless area resource and will culminate when the Forest Service completes a final environmental impact statement (EIS) at the end of this year. We are now completing the most crucial stage: the public comment period (which runs from June 15-Oct. 1) on the draft EIS. Nationally, the RARE II process covers 62 million acres in 38 states, 5.8 million acres of which is in Montana.

These lands are known as *de facto* wildernesses—wildernesses in fact but with no legal protection of their wild qualities. Ironically, the only protection they have from economic development has been the economic system itself. If the commodity resources had existed in these remote, unproductive lands, they would have been roaded and developed long ago.

Montana conservationists have carefully identified a portion of the 5.8-million RARE II acres in Montana for wilderness designation. We are convinced that Congress can protect these priority wild lands without serious conflict with existing uses, such as timbering, mining and motorized recreation, and without injury to dependent communities. Here are some of the benefits of wilderness:

(1) *Far from being a lock-up, the Wilderness Act provides flexible management of a variety of multiple uses.* The act includes the following mandates: State jurisdiction over fish and wildlife shall be honored, state water laws shall be honored, livestock grazing shall be permitted to continue and condemnation of private inholdings is prohibited.

(2) *Wilderness protects watersheds and fisheries.* Logging may increase water yield on forest lands, but too often these increased stream flows occur in the spring when they are not needed. The result is a reduction of late season flows, which is often a limiting factor in fishery survival.

(3) *Wilderness prevents the loss of key wildlife habitat.* Once key big game habitat is penetrated by roads and clear-cuts, it is gone.

(4) *Wilderness provides cost-effective land management of forest lands.* Most of our wild lands can be managed on a more favorable cost-effective basis as wilderness, rather than committing the lands to marginal timber operations which result in deficit sales, subsidies and the public paying for roads that should never have been built.

The draft environmental statement that was released to the public on June 15 consists of a national assessment, along with individual state or regional supplements. The Montana supplement divides the state's 155 RARE II areas into 10 alternatives, each of which provides a different mix of the areas in "wilderness," "non-wilderness" and "further planning" categories. Three of the alternatives are not feasible: all wilderness (Alternative J), no wilderness (Alternative A) and all further planning (Alternative B). All of the seven mid-range alternatives are slanted in favor of massive development and against rational protection of fragile wild areas. Each of the alternatives omits important areas that conservationists have long fought for, so that clearly none of the alternatives presented in the draft statement is acceptable.

A second major weakness of the draft is its emphasis on "cost" of setting aside areas as wilderness, with no data on actual costs of developing remote, inaccessible areas. Nor are the important benefits of wilderness described.

RARE II will be the last stand for millions of acres of key wildlife, watershed and scenic lands in Montana. The public comment deadline of Oct. 1 is fast approaching. (Letters should be sent to Regional Forester Robert Torheim, U.S. Forest Service, Federal Building; Missoula, MT 59801.)

The choices we make will have a major effect on the future character of Montana.—*Bill Cunningham, The Wilderness Society; Helena, Mont.*

* * * *

The Jan./Feb. 1978 issue was wonderful. As an engineer, I don't know where we stand on this wilderness issue. I hate to see the Arabs take over our country because we are not using the energy that we have in abundance in the Rocky Mountains.

Being in my late 70s, I worry what is going to happen to our state of Colorado, especially to the western slope. It has billions of tons of coal reserves and also billions of barrels of oil (in oil shale) that the nation needs. The oil shale is on the extreme western edge of Colorado and into eastern Utah where I have hunted for years. The oil companies say once they get to processing this oil shale, a city of 30,000 people will be necessary.

That is in the center of the winter grounds of thousands of deer that move from the high country where they feed in the summer. I especially refer to the White River area which has been known as one of the best deer hunting areas in the United States. Now just how are these thousands of deer going to adjust to thousands of people who will be working to get the oil from this oil shale?

We still have quite a number of these animals left in Colorado, but with the enormous push for energy, I just wonder how long they will have any area in which to exist.—*Marcellus Merrill; Englewood, Colo.*

* * * *

Your treatment of possible Montana wilderness areas in your Jan./Feb. 1978 issue is well done. However, you have forgotten an important area near Missoula known as Welcome Creek. This land is approximately 15 miles southeast of Missoula with the famous Rock Creek as its eastern border. The Sapphire Mountains lie along the western edge. The proposed Welcome Creek wilderness contains 29,000 acres of mountainous terrain and, except for a single road used mainly during hunting season, is roadless. It is being studied under the RARE II program as a possible candidate for wilderness. The late Sen. Lee Metcalf sponsored Welcome Creek within his Endangered American Wilderness Bill (HR 3454).

Welcome Creek provides good habitat for both white-tailed and mule deer and

recycled paper

elk. Its rugged landscape and thick forests offer challenging but popular hunting spots for many western Montanans. Open south slopes provide grass for winter range and occasional forest fires have produced thickets with shiny leaf ceanothus, which is important browse for deer and elk. Visitors to the area see occasional martens, bobcats and mountain lions. The name for a drainage in the southern part of the Welcome Creek area comes from an unusual light color phase of the black bears present there. So, one finds Cinnamon Bear Creek and Cinnamon Bear Point on maps.

Because of lack of logging in any of Welcome Creek's drainages, each of the streams flowing into Rock Creek has excellent water quality. Compared to streams in adjacent areas where logging activity is present, less seasonal run-off occurs.

Welcome Creek has historical value, too, a possible criterion for wilderness consideration. Placer gold mining was common in the area at the turn of the century. Because of lack of roads and machinery used in the search for gold, little disturbance has occurred. One of the state's largest gold nuggets was discovered in Welcome Creek. In Montana's colorful saga of outlaws and heroes, one outlaw named Frank Brady was hunted down at the mouth of Welcome Creek on Thanksgiving Day, 1904. When he didn't surrender, he was shot and killed by two lawmen from nearby Philipsburg.

Because of Welcome Creek's history and its habitat quality, this is indeed one additional area in Montana that should be considered for wilderness. Perhaps the following note left in one of the old cabins best describes other sentiments about Welcome Creek: "Thank you for the hospitality you've extended. Had a good stay, enjoyed the wood stove. This is truly a good valley to be called 'Welcome.' Only wish we could stay longer. Help keep this place as it is. It's too rare a delight to lose.—Eric and Jeff"—*Donald M. Berg; Missoula, Mont.*

Water: A Finite Resource

Ted Schwinden's informative article, "Waters of the Yellowstone" (*Montana Outdoors*, May/June 1978), should be required reading for everyone who even remotely expects to use our most precious resource—water. His explanation of why we must conserve this resource would awaken many who seem to believe this resource is infinite.

It's too bad this article cannot be more widely disseminated to educate more people as to why we cannot afford to waste water.—*D. Roscoe Nickerson, Skyline Sportsmen's Assn.; Butte, Mont.*

Article Suggestions

I think your magazine is a fine publication.

However, some articles about historical Montana, native Americans (use of herbs, medicines, rites, recent land and boundary treaties between the U.S. and reservations) might be some new ideas for *Montana Outdoors.—Phil Miles; Huson, Mont.*

Weeds Are No Small Problem

I was reading some letters in your recent issues dealing with the state's weed problems. Because I am in contact with this problem, the letters especially interested me.

Many Montanans do not fully realize the gravity of this problem. True, much range land can be rendered useless if the weed problem increases greatly. This not only affects the rancher, but the big game hunter too. Much farm land becomes difficult to farm and the production is reduced due to weeds. Many people are aware of these aspects of the problem.

One aspect that many don't know about or refuse to acknowledge is embargoes that can be placed on products produced in Montana. Some of our neighboring states can refuse to accept grain or hay produced in an area with many noxious weeds. They do this to protect themselves.

This—as far as I know—has not happened, but the possibility is still there.

Farmers and ranchers are not the only ones responsible for this problem. People in the cities share in it because they can unknowingly spread weeds.

Some weeds are quite pretty and fragrant. Some are good ground cover. All in all, weeds seem quite harmless. But all weeds have one thing in common—they are pests. In digging up that "pretty plant," first find out if it is a weed. People have been known to dig up a weed and take it to a place that didn't have that particular weed to contend with. The weed problem in Montana is large and varied. Not only do the weeds pose problems, but so do well-meaning people.

It's time all Montanans took a good, hard look at this problem and started working at it. We need not only money, but time and research put into this and lots of cooperation.

Weeds spread; that's a fact of life. They are spread by air, water, animals, birds—you name it, and it can spread weeds. If you have weeds, you have a responsibility to me and to everyone else to control them. Let's work together and try.—*Melody White; Two Dot, Mont.*

What is "Unnecessary Weed Control?"

In the Jan./Feb. 1978 *Montana Outdoors*, the first letter in your "Dear F&G" section was titled, "Unnecessary Weed Control." You failed to say what was unnecessary. When will you ever learn why we Americans have the best standard of living and the longest life expectancy in the world? Could it be because we eat better than 70% of all humanity? Why is this possible? Because our American farmers are number one in the whole world, that's why. They have the best possible knowledge available about a wide range of subjects, including chemicals, fertilizers, etc.

If you shut off all chemicals, your grocer would, by next year, have nice, wormy, fresh produce for you, and a lot less of it. By 1980, you would be feeling the pinch, and shortly thereafter, you would be hungry. Then maybe Dr. Mike Moredock and Ralph Campbell would be singing a different tune.

The following comes from an article by Dr. Phillip J. Wingate in *DuPont Context* (Vol. 5, No. 2, 1976, pages 32-33), titled "Of Horseradish and Humility":

"The civilized part of the human race in recent years has become frightened by chemicals and at times seems to wish that it could do away with them entirely. This is unfortunate for two reasons. First, it is not necessary, and, second, it is impossible.

"The world is made up of chemicals, and the air above us as well as the oceans and continents around us are seething masses of chemical reactions. Happily, this has always been true, so there is nothing to be alarmed about. The human race grew tall and strong or soft and round, according to your preference, while exposed for countless centuries to all sorts of chemicals. In proper doses they do no harm and actually are necessary for a healthy human race.

"Most people learn early in life—from exposure to such things as horseradish, Tabasco and even table salt—that while a little bit of something can be very good, a whole lot can be a disaster. Not everyone learns this, to be sure, and some people have trouble all their lives with such things as alcohol, chocolate sundaes and garlic. Nevertheless, the idea is sound, and most people agree.

"However, it is astonishing how many people have trouble if they start at the end

and work back to the beginning. They tend to think that if a lot of something is very bad, then even the tiniest amount must surely be a little bad and will destroy the human race in a few years. Give us zero exposure to chemicals, they say, and the cyclamates were banned entirely because huge doses caused cancer in some experimental animals.

"They persistently ignore a multitude of well-known facts. The salts of copper, tin, cobalt and even iron, in large quantities, are poisons, but every one of them, in small quantities, is necessary for healthy human life. . . ."

Dr. Wingate had much more information in his article, but I'm sure you get the idea that chemicals are not all bad. I'm not saying chemicals are the whole answer; they aren't. Montana State University is working on biological control of grasshoppers and has been for the past three years. Also, if possible, a program of integrated pest management is used. This all takes time.

If people who don't know where that loaf of bread on the grocer's shelf really came from would leave the agriculture industry alone, then that loaf of bread would continue to be there.—*Michael Biggerstaff, aerial applicator, Big B Flying Service; Stanford, Mont.*

Enjoyed Wild Edibles

I greatly enjoyed Kim Williams' article, "Wild Edibles," in your May/June 1978 issue. I should think that other readers, including myself, would be interested in knowing where her book may be obtained and the price. Could you supply this information?—*Ferris Weddle; Kamiah, Idaho*

• *Kim Williams' book, "Eating Wild Plants," was published in 1977 by Mountain Press Publishing Co., 279 West Front; Missoula, MT 59801. Cost of the paperback book is $4.95.*—Ed.

True vs. False Morels

In reading Kim Williams' article, "Wild Edibles," in the May/June 1978 *Montana Outdoors*, I came across the section on mushrooms. I have been picking morel mushrooms since I was a boy. Recently, I found a patch of light tan mushrooms which I thought were real morels. I brought them home, but it was too late to prepare them for dinner, so we froze them. From the description in the Williams article, they were false morels as the heads were convoluted. That article saved us from an ordeal.

I usually read *Montana Outdoors* as soon as it comes, and I know it was a good thing to do this time!—*Clyde E. Pendergraft; Ronan, Mont.*

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graphics Vern Craig

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JA82

Editorial

What Is A Road?

The title of this editorial will probably turn some readers off by making them feel it is an insult to their intelligence. You might think, "Anyone with a lick of sense can tell you what a road is." However, let's add the adjective "established" and then the question becomes, "What is an established road?" Considering the number of telephone calls received each year regarding this question, it appears many people are not quite sure what the answer is.

For years, Montana's big game hunters paid little attention to where they drove while pursuing their quarry.

This (above) leads to this (below), although neither is legally defined as a "road." F&G photos: Paul Bushaw

Tracks left by their vehicles could be seen in many antelope and deer hunting areas. During antelope season, for example, it was not uncommon to see a jeep tearing across the prairie in hot pursuit of an antelope herd. Many ranchers closed their land because of these thoughtless practices that left their mark on hayfields and pastures. Many popular hunting areas are still scarred and eroded because the vegetation was damaged by someone attempting to reach a ridge top or plateau.

In an effort to control some of this needless destruction and to enhance landowner/recreationist relations, a law was passed which prohibits indiscriminate driving through Montana's roadless areas. The law states: "No person, while hunting game animals or game birds, may use a motor-driven vehicle other than on an established road or trail, unless he has reduced a big game animal to possesion and cannot easily retrieve the big game animal. In that case a motor-driven vehicle may be used to retrieve the big game animal, except in areas where more restrictive regulations apply or where the landowner has not granted such permission."

Simply stated, the only time a hunter can drive off an established road is when he has killed an animal and is in the act of picking it up. If he is hunting on private land, he must have permission to do even this.

So, what is an "established" road? The criteria the department uses in its definition include: (1) The road appears to be permanent. (2) It is wide enough to accommodate the vehicle being used on it. (3) It is either a road which has been excavated, graded or constructed or one which has been so habitually used by a vehicle that the surface has been *permanently displaced* or eroded, and it is substantially free of grass or other vegetation.

A track or trail overgrown with vegetation should not be considered an "established" road.

Passage of this law by the Montana Legislature was one more step in the attempt to improve relations between the state's landowners and recreationists. The Dept. of Fish and Game's present administration is initiating new programs and directing many resources toward solving some of these age-old problems. "Walk-in only" areas, a new hunter access program and the Landowner Relations/Sportsmen Access Advisory Council are only a few of the projects that will try to resolve some of the conflicts. Everyone realizes that more laws do not always solve a problem. But if the state's hunters will adhere to the "established" road regulation, the possibility of more private land opening for recreation will be increased.—*Bill McKiernan*

photo Jon Cates

Grouse of Montana

paintings by Ron Jenkins

text by Dave Books

Ron Jenkins was born in Pawtucket, R.I. in 1932, and has been sketching and painting wildlife for as long as he can remember. His work has been exhibited all over the United States, and his illustrations have appeared in numerous magazines and outdoor publications. In 1965, he won the coveted Federal Duck Stamp Design Contest; his rendering of canvasbacks was chosen from among 200 entries.

Today, Ron resides with his family in Missoula, Mont. He and his wife Marian have five children—all boys. He is an avid fisherman and bird watcher. His feelings for the future of wildlife are special to him. He states: "Wildlife today needs all the help it can get. If I can portray our wildlife world correctly in pictures, perhaps it will create some awareness of its true beauty and value to our planet. To capture with my brush and thus examine a special moment in time and in minute detail is my way of seeing and sharing a split second of time over again."

continued

© r.jenkins

Ruffed Grouse

The drumming of a ruffed grouse behind my tent slowly bores into my consciousness, and I am suddenly awake. I crawl from my warm sleeping bag, dress hurriedly and move slowly into the half-light of dawn. I walk only when the grouse drums, stopping when he stops. When I get close, I begin to crawl. Yesterday, I located his drumming log, waited patiently for him to leave, then built a simple blind of pine boughs and dead grass. Now my arms ache from crawling. My fingers and toes are numb with cold, but I am finally in the blind. As I peer through the boughs, he cocks his head nervously from side to side, and I'm afraid he sees me. Then suddenly he turns around several times, glancing in all directions. Satisfied he's safe, he stretches to his full height, spreading his tail on the log for balance. He puffs out his stomach and chest, throwing his "shoulders" back. Then comes a quick forward stroke of the wings, so fast it is barely discernible, producing a resounding "thump." A short pause is followed by another forward stroke and resultant thump. The tempo begins to pick up, and the wing beats merge into a whirring blur of muffled thunder, finally ending with a single, weak note. The entire performance lasts about eight seconds. I watch, entranced, until many drum rolls later he moves off the log and melts into the forest. I struggle stiffly to my feet, chilled to the marrow, but warmed with the knowledge that at last I share the secret of this springtime heartbeat.

r. jenkins

Sharp-tailed Grouse

"The sport afforded by this grouse is of a very high order. At the opening of the season it lies well to the dog, and springs with the usual whirr of wings, at the same time uttering a vigorous clucking, which is repeated again and again as the birds speed away, alternately flapping and sailing . . . I know of nothing better for a business-harassed man than a day on the sunny open with the sharptails behaving well."—Edwyn Sandys, 1904

* * * * *

A raw north wind is spitting snow, and I wonder why I want to go sharptail hunting at all. The grizzled old rancher stands in denim jacket and sweat-stained Stetson, seeming not to feel the harshness of the wind, which is rattling my ribs under two layers of goose down and wool. His hard blue eyes soften when he talks about the sharp-tailed grouse: "Chickens was a way of life for us when I was a boy. We depended on 'em for food. Everyone around here did. . . . The chicken is a tough old bird. He'll burrow right into a snowbank for protection against the wind and cold. Damn near turn your horse inside out when he comes bustin' out. . . ."

A tough bird and a tough man, I think, They survive and even prosper in this rugged, wind-blown land of grass, rock and snowberry coulee. Men who work the land seem to have a soft spot in their hearts for these pretty prairie grouse; although I love to hunt them, so do I.

© m.jenkins

Franklin's Grouse

On a warm afternoon in August, my Brittany spaniel pup and I are exploring the shoreline of a high mountain lake deep in the Selway-Bitterroot Wilderness. Suddenly, we are startled by a clatter of wings, as a family of Franklin's grouse scatters into the trees around us. One plump specimen sits on a branch a few feet overhead, peering smugly down. My pup is doing handsprings, business has been slow with the fly rod, and here's grouse dinner just a stone's throw away. My stomach says yes, but my conscience says no. To paraphrase Ecclesiastes, "To everything there is a season"; to paraphrase the Montana Dept. of Fish and Game, "August ain't the Franklin's grouse season." Sure hope I can catch a trout tonight.

Sage Grouse

My Lab and I had tramped the dry, dusty sagebrush flats all day and hadn't stirred a feather. Somewhere in the endless olive sea, I supposed, were some sage grouse. But I was hot, tired and discouraged, so I climbed into the truck and headed down the track for town. As I came over a rise, the biggest grouse I had ever seen suddenly materialized in the middle of the road. The grouse flushed, but he didn't fly far, and I marked him well. Brimming with confidence, I sauntered into the sage. After all, how can you miss a sage grouse?

* * * * *

I cracked the over-under in disgust, and watched two cherry-red Winchester hulls arc into the sage. My Lab looked back over her shoulder reproachfully, and I knew what she was thinking: That cock bird weighed six pounds if he weighed an ounce, and took off slower than the Goodyear blimp. I quickly busied myself in the sagebrush, searching for two hulls that matched the color of my face. After all, how can you miss a sage grouse?

© r.jenkins

Blue Grouse

I first encountered Dendragapus obscurus*—the blue grouse—in a freshman ecology class in Wisconsin, where there are no blue grouse for a thousand miles. But I didn't forget the name—I suppose because of its sheer tongue-twisting cussedness—and when I moved to Montana 10 years later, I was anxious to meet him in person. One chilly May morning found me huffing and puffing up a mountain in the Blackfoot Valley with a biologist acquaintance who was studying the mating habits of grouse. When the appointed hour arrived, we took our places at the edge of a meadow bordered by ponderosa pine and Douglas-fir, and played an unusual tape recording: the love song of the female blue grouse. It wasn't long before an amorous male swaggered into view, tail fanned, orange combs erected over his eyes and neck feathers forming two snowy rosettes with raspberry-red centers. As we crouched motionlessly, he strutted and hooted a few yards away. Then, unexpectedly, he hopped off the ground and shattered the morning stillness with a thundering wing clap. Startled, I too did a little involuntary leap into the air.* Dendragapus *skedaddled for the nearest thicket, while I struggled to regain my composure. I'm not sure who enjoyed this bizarre mating performance the most, but judging from the howls of laughter, it was my friend the biologist.*

photo: Jerry Manley

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